HUNTING AMERICA'S MOST WANTED WHILE
SAVING MONEY, LIVES, AND FACE :
THE RISE OF RPA

BY

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A THESIS PRESENTED TO THE FACULTY OF

THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES

FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 2014

	Form Approved
Report Documentation Page	*OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **JUN 2014**	2. REPORT TYPE	3. DATES COVERED **00-00-2014 to 00-00-2014**

4. TITLE AND SUBTITLE **Hunting America's Most Wanted While Saving Money, Lives, And Face: The Rise Of RPA**	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **School of Advanced Air And Space Studies,,Air Univeristy,,Maxwell Air Force Base,,AL**	8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**84**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

APPROVAL

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ACKNOWLEDGMENTS

ABSTRACT

This thesis responds to a national debate about the America's controversial workhorse in recent military conflicts—remotely piloted aircraft (RPA). It seeks to answer why the United States rapidly expanded its RPA inventory in lieu of other alternatives in recent years. Conventional wisdom suggests the rise of RPA was chiefly due to economic reasons. However, the variables, both monetary and non-monetary, that played a role in the decision to expand America's RPA inventory are unsettled today and could impact its future.

Some decision makers believe RPA rose because they were cheaper than manned systems. Other leaders agree that money was a factor but contend RPA growth was primarily due to system capability. Still a third group argues that politics may have been the chief cause of expansion. Each variable—money, capability, and politics—presents a number of associated implications for decision makers and strategists.

The United States military and other government organizations supporting national defense will continue to operate under significant budget constraints for the foreseeable future; therefore, it is important to examine the opportunity-cost, decision-making process throughout RPA expansion. Second, since delivering the most capable weapon systems to the warfighter is considered a fundamental imperative of decision makers, it is also critical to investigate whether RPA provided increased capability to their most important customers. Third, it is essential to examine whether RPA growth was primarily related to politics because opinions and perspectives on the most capable, versus the most necessary, weapons can be situational and subjective.

Ultimately, this thesis traces key RPA events and decision-making processes in Kosovo, Iraq, and Afghanistan from 1999-2014 in order to help senior leaders and military personnel better understand the intricacy surrounding the decision-making process of a weapon system that has become a vital national security asset. Decision makers at all levels of the government should be able to make more informed decisions about RPA expansion in the future after considering this argument. This thesis argues that money, capability, and politics were intimately connected in the RPA expansion during the three conflicts discussed, but that politics and capability emerge as the main reasons why key decision makers and organizations selected RPA in lieu of other alternatives.

CONTENTS

Introduction

I'm a big fan of UAVs where they make sense…but we should not rush into a bunch of RPAs just because we can…there is nothing cheap about them. There is a lot of manpower behind them and that isn't cheap either.
                                          —Chief of Staff of the Air Force General Mark Welsh, November 2013

The question to me is not which of U-2 or Global Hawk. It should be both and more. The issue should be that the Air Force's budget should be increasing.
                                          —Under Secretary of the Air Force Eric K. Fanning, May 2014

Over the past few decades, very few weapon systems have been debated more than remotely piloted aircraft (RPA). RPA were essentially revived from their deathbed in the 1990s, after flying hundreds of successful missions during the Vietnam War, but falling out of favor with decision makers for a variety of reasons in the 1980s. In *Air Force UAVs: The Secret History*, Thomas P. Ehrhard traces the rise and fall of Air Force RPA from World War II to 2000. Ehrhard argues that in the 1980s RPA "were not pushed but were in fact eclipsed by other systems that emerged in this period of rapid Air Force transformation. A study of those competitive systems reveals that, rather than rejecting pilotless vehicles out-of-hand due to some deep-seated cultural resistance, the Air Force pursued more lucrative and equally innovative avenues for dealing with the Soviet air defense threat. In fact, RPVs may have stimulated those alternative innovations by providing a less useful contrast."[1]

Current debates about RPA expansion indicate the weapon systems and the organizations that employ them could face a number of problems in the near future that were present in the 1980s. Consequently, this paper's main objective is to answer why the United States during recent conflicts rapidly fielded and significantly expanded its RPA inventory in lieu of other alternatives. A second aim is to forecast why different decision makers and national organizations could continue America's RPA proliferation in the future.

Since 2001, the number of RPAs has increased dramatically. The issue at hand is that key decision makers remain divided over further expanding America's RPA inventory. National leaders are discussing what to do with older RPA systems returning

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[1] Thomas P. Ehrhard, *Air Force UAVs: The Secret History*, July 2010 Mitchell Institute Study, http://www.afa.org/publications/MitchellInstitutePapers, 38.

home from the war in Afghanistan and what role they will play in future conflicts in places like China.[2] Some decision makers and organizations are seeking to divest themselves of RPA all together, while others are seeking more.[3]

Research Problem & Significance

This paper offers explanations for the divergence in interests and ideas that eventually led to RPA proliferation. Conventional wisdom suggests the rise of RPA can be explained using economic models. However, the economic variables, both monetary and non-monetary, that played the greatest role in the decision to invest in and field significantly larger RPA inventories in the past are unsettled today. Some people believe the number of RPA increased because they saved America money. Others contend the expansion was due to the systems capability, which allowed national leaders to save and/or take lives effectively and efficiently. Still a third segment argues that domestic and organizational politics better explain the expansion.

Each perspective has a number of associated implications. First, it is highly likely the Department of Defense (DOD) will continue to operate under significant budget constraints for the foreseeable future; therefore, it is important to verify whether decision makers believed RPA were less expensive than other systems. Second, since delivering the most capable weapon systems to warfighters is a fundamental imperative of decision makers, it is also critical to explore whether RPA provided increased capability to its customers. Finally, it is essential to examine whether RPA growth was directly related to a particular political environment, because multiple stakeholders, organizations, and even the enemy can influence political considerations.

If the rise of RPA was due to saving money and lives, then it is plausible that most decision makers and organizations will continue to pursue and develop the

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[2] Robbin Laird, "Why Air Force Needs Lots Of F-35s: Gen. Hostage On The 'Combat Cloud,'" *Breaking Defense* online, accessed 10 April 2014, http://breakingdefense.com/2013/01/why-the-air-force-needs-a-lot-of-f-35s-gen-hostage-on-the-com/.

[3] Michael Hoffman, "SOCOM Wants to Deploy MQ-9 Drones to Remote Areas," *Military.com*, accessed 14 April 2014, http://www.military.com/daily-news/2013/09/16/socom-wants-to-deploy-mq9-drones-to-remote-areas.html. SOCOM's 2014 posture statement includes MQ-9 RPA as a key asset that will be utilized to help support their global mission. SOCOM views of RPA expansion run counter to some Air Force organizations like Air Combat Command, which argue that RPA like the MQ-1 and MQ-9 will likely be irrelevant in a pacific scenario. This thesis helps evaluate if any of the recent conflicts had similar causal factors and/or situational conditions as the past that may explain the divergent perspectives. See SOCOM 2014 Posture Statement, accessed 1 April 2014. http://www.socom.mil/Documents/2014%20USSOCOM%20POSTURE%20STATEMENT.PDF, 7.

technology for the conceivable future in order to save the nation vital treasure. However, if RPA growth was due to subjective political factors alone, then it is reasonable that other senior leaders will seek to dissociate themselves from the weapon system in order to pursue more practical and capable weapon systems better suited for alternative environments and objectives.

Limitations of the Study

Although this thesis explores every case in which RPA played a role in a major combat operation, it does not compare and contrast each variable in this study—cost, ability to mitigate risk to personnel, ability to mitigate political risk, and capability— between all RPA and every manned alternative that America could have selected in Kosovo, Iraq, and Afghanistan. To understand the effects of cost, this study examined the money spent on different RPA platforms and programs according to multiple public government records. It studied cost comparisons including RPA, versus manned aircraft platform prices; increasing budgetary support and fielding of RPA versus manned systems; in addition to overall operations and maintenance costs of RPA, in light of total war costs. To examine the role of politics, this paper used the previously mentioned reports in addition to recognized journalistic narratives and after-action reports commissioned by civil and military leaders that focused on key decision makers and decision points. In addition, this study relied on the personal memoirs of President George W. Bush and Secretary Robert M. Gates to inform the political sections in its Iraq and Afghanistan case studies, focusing broadly on the perceived political efficacy of RPA across multiple administrations and organizations. Each section of political analysis considers the nation's highest leaders opinions about RPA, in addition to the political sensitivities and concerns related to employing the weapons systems on the traditional battlefield versus other global theaters such as Pakistan. Additionally, RPA capability was examined according to requirements of military and civil organizations responsible for national security and defense. RPA strengths, weaknesses, and advancements were considered throughout each conflict along with their ability to help meet both operational and political objectives.

Ultimately, key perceptions, concepts, people, and organizations are discussed broadly, primarily because of temporal constraints, but also due to classification controls

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associated with RPA. It is important to note that the war in Iraq ended in December 2011, while the war in Afghanistan is drawing to a close as of 2014; hence, the story of RPA development and proliferation is still largely unknown, untold, and unfinished. This thesis should be updated as additional literature related to RPA become available. Finally, this author is susceptible to bias for a variety of reasons, chief of which may be his personal experience flying and observing RPA missions in Iraq and Afghanistan. A diverse group of theoretical perspectives related to decision making are investigated in the next chapter in an effort to mitigate such biases. Additionally, primary and secondary sources that included decision maker's personal accounts or public testimony have been consulted and integrated into this study in order to provide viewpoints of the nation's leaders.

Defining RPA

America has a variety of names for what the United States Air Force (USAF) classifies as RPA. RPA are often referred to as unmanned aircraft (UA), unmanned aircraft system (UAS), remotely piloted vehicles (RPV), and drones among other terms. In accordance with current USAF terminology, this paper primarily uses the term RPA unless directly quoting other sources. To be clear, the primary topic of this paper is USAF RPA such as the MQ-1 Predator, MQ-9 Reaper, RQ-4 Global Hawk, and the RQ-170 Sentinel, which are medium-to-high-altitude systems, or what the joint community defines as group four or five UAS.[4] Part of the debate and confusion surrounding RPA is related to the various names, terminology, and groups of RPA each service component and other government organizations own, operate, and are pursuing for future conflicts. This paper focuses on America's most capable RPA, but others are discussed at times in order to provide additional background information or perspective on RPA proliferation.

The Road Ahead

Chapter 1 develops the theoretical foundation for the rest of the study. It elaborates upon this papers theoretical, political, and strategic importance. It examines past and present theories that help explain how and why decision makers make decisions

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[4] United States Air Force, *RPA Vector: Vision and Enabling Concepts 2013–2038*, USAF 17 February 2014, accessed 1 April 2014, http://www.af.mil/Portals/1/documents/news/USAFRPAVectorVisionandEnablingConcepts2013-2038.pdf, 13-14. Group four RPA weigh over 1,320 pounds but primarily operate below flight level 180. Group five RPA also weigh over 1,320 but are capable of operating above flight level 180 or Class A airspace.

related to major weapon systems used in combat. The perspectives range from rational models, to more subjective political, and organizational reasons for developing, selecting, and using particular weapons in combat. Chapter 1 concludes with three working propositions about what caused the rise of RPA, which are tested in three subsequent case studies.

Chapter 2 focuses on RPA development, application, and expansion in Kosovo during Operation Allied Force (OAF). The Kosovo case study differs significantly from Iraq and Afghanistan in major ways. For one, RPA and their associated operational expenses were dramatically cheaper in Kosovo than in Iraq and Afghanistan, chiefly because of the length of the conflict but also due to low monetary costs of RPA aircraft and associated operational expenses. Kosovo also reveals that American civil and military leaders were still wrestling with RPA development and application in combat, despite their success in the Persian Gulf War and Bosnia leading up to the conflict.[5] Although RPA provided some persistence and basic video capability to significant civil and military organizations in OAF, they were technically limited and failed to meet specific requirements of operational commanders. Finally, Kosovo provides a contrasting example to the other case studies because decision makers ultimately elected not to expand America's RPA inventory significantly either during or immediately after the conflict. Additionally, RPA were unarmed, and no US fielded forces participated in the conflict.

Chapter 3 examines RPA expansion in Iraq. It follows Kosovo chronologically in terms of the first major growth in America's RPA inventory, which occurred surrounding the ground force surge. The Iraq case study also differs from Kosovo and Afghanistan. Perhaps the greatest dissimilarity is that RPA began the campaign with significant financial and political support. Unlike Kosovo, many decision makers required considerably less convincing that RPA should play a larger role during counterinsurgency operations. Also, despite increased technical support and capability improvements following Kosovo and during the start of the war in Afghanistan, lack of RPA industrial facilities, aircrew, and support personnel were major barriers to fielding more systems

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[5] Tony Mason, "Operation Allied Force, 1999," in *A History of Air Warfare*, ed. John Olsen (WA, DC: Potomac Books Inc, 2010), 245.

early in the conflict. In the end, Operation Iraqi Freedom (OIF) was the first joint military campaign in which RPA radically expanded setting the stage for a similar increase in Afghanistan.

Chapter 4 examines RPA growth during Operation Enduring Freedom (OEF) in Afghanistan. RPA technology, political and military support, and monetary cost had advanced significantly since Kosovo and even Iraq. RPA continued to rapidly expand under a new Presidential Administration despite some objecting to their adverse impact on FATA societies along the Afghanistan and Pakistan border. Organizations such as the CIA and SOF community embraced the RPA due to their recognized capability to hunt and kill high value targets (HVTs), while the Army focused more specifically on their ability to save soldiers lives battling insurgents armed with improvised explosive devices. Similarly to Iraq, RPA increased during a ground surge; but they also continued to increase during a subsequent military drawdown of American ground forces. Ultimately, decision makers furthered the expansion of RPA in OEF for three main reasons: reformed political priorities that shifted to threats in the country and neighboring Pakistan, political perceptions of RPA's efficacy to hunt and kill HVTs in both locations, and the indirect and direct-attack capabilities that RPA provided to both conventional and special organizations responsible for conducting the nation's most risky missions.

The closing chapter of this paper draws general conclusions and implications about RPA expansion. It returns to the three propositions submitted in Chapter 1, broadly assesses the theories that supported the propositions, and makes forecasts about future potential of RPA operations and inventory proliferations. The next chapter turns to established conceptual models related to decision making in order to develop a theoretical foundation for the rest of the paper. It intentionally omits detailed RPA data discussed in the subsequent case studies, focusing instead on similar technology in an effort to delineate theoretical development from its testing in subsequent case studies. America's RPA inventory is increasing; the next section suggests three reasons why this happened in the past and may continue to occur in the future.

Chapter 1

Explaining the Rise of RPA

Introduction

The rapid expansion of America's RPA inventory is a relatively recent phenomenon; therefore, no theory exists on the subject.[1] This chapter begins to fill the void by exploring three propositions that may have caused the United States to dramatically increase its RPA assets. It explores both key elements of established conceptual models related to decision-making and national documents to develop its propositions, which indicate the theoretical, political, and strategic importance of this study. The chosen conceptual models for this study reveal that throughout history decision makers have selected particular weapons for a variety reasons. A review of the literature related to civil and military decision making suggests three possible motivations for why the United States selected RPA over other similar systems: money, politics, and capability. The literature also reveals that understanding the decision to increase RPA in a particular situation requires detailed contextual knowledge about the conflict, national objectives, key civil and military leaders, as well as the civilian and government organizations involved in the decision-making process. The contextual factors are considered in the subsequent case-study chapters and conclusions to develop and examine both specific and general implications. In what follows, each major variable impacting RPA expansion is introduced by practical theoretical perspectives and developed into propositions that serve as a starting point for this study.

Rational Choice/Expected Utility Theory

A common approach used to explain decision making under risk is referred to as rational choice, or the rational actor model. Expected utility is an economic theory that was developed based on the same conceptual framework. It specifically focuses on decision making in which each course of action or preference leads to a set of possible

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[1] There are many public hypotheses on the rise of RPA, but no theses, articles, or texts seek to resolve the specific problem of this paper. For the purposes of this document rapid expansion or "rise" of RPA means doubling close air patrols (CAPs) or aircraft inventory. The first RPA CAP was not iniated until 2001 during the first year of combat operations in Afghanistan.

consequences and in which the probability of each consequence is identifiable.[2] Expected utility theory posits that rational people make optimal choices in constrained situations and environments, effectively value maximizing or selecting the most efficient alternative.[3] Similarly to decision making related to weapon system expansions in the past such as nuclear weapons or precision-guided munitions, RPA growth can also be examined as a value-maximizing choice or preference by national leaders. Some advocates for both weapons systems, saw nuclear and precision weapons as ways to save the nation vital resources because of their efficiency. Comparably, decision makers weighed the benefits and costs of the decision to increase RPA, estimated the likelihood of success, and ultimately determined that adding systems was a value-maximizing choice based on key variables related to national objectives.

Rational models suggest that decision makers decided for logical and coherent reasons to increase RPA because the weapon systems helped meet the nation's objectives. The National Security Strategy (NSS) written during the time period examined in this thesis provides insight into America's vital interests, goals, and objectives. One rational interest mentioned consistently in the reports is the nation's economic well being.[4] Without a thriving economic base and sufficient finances to support military development and modernization, the nation faces a significant security risk. The 2010 report also conveys a common emphasis between the two strategies. It asserts that key leaders must responsibly consider and protect the nation's monetary resources: "The United States Government has an obligation to make the best use of taxpayer money, and our ability to achieve long-term goals depends upon our fiscal responsibility. A responsible budget involves making tough choices to live within our means; holding departments and agencies accountable for their spending and their

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[2] Graham Allison and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis* (New York: Longman, 1999), 14-15, 390-392. Each of the authors referenced in this chapter contend that one of the leading prescriptive and explanatory theories of decision making under risk is the expected utility model, which stems from the rational actor model that Allison and Zelikow use in their text. Allison and Zelikow use three rationally based models for analyzing the Cuban missile crisis. Each model provides a different perspective of the decision-making process but all assumed that decision-making was ultimately rational. Elements of Allison and Zelikow's models are used to explain decision making related to RPA expansion, but other authors and perspectives are considered for the purposes of this thesis.
[3] Allison and Zelikow, *Essence of Decision*, 16.
[4] White House, *National Security Strategy* (Washington, DC: White House, 1998, 2002, 2006, 2010), http://nssarchive.us.

performance; harnessing technology to improve government performance; and being open and honest with the American people."[5] The 1998 report highlights the rational cost-benefit analysis associated with military modernization and personnel reduction prior to the start of RPA operations: "A key element of this balance was our decision to increase funding for modernization to protect long-term readiness. In this context we decided to make modest reductions in personnel, primarily in support positions, across the force structure."[6] From the nation's stated aims of preserving and advancing its economic capability and the rational choice concepts discussed above, a proposition about the influence of money on the expansion of RPA can be developed.

Proposition #1 Money—The United States increased RPA because leaders believed the systems would save the nation money. All else being equal, rational-choice models suggest that saving money would be a logical value-maximizing reason that national leaders decided to expand America's RPA inventory. If RPA were equally capable as manned aircraft and employed for similar missions, but were cheaper to purchase and operate, then the nation should obtain more RPA.[7] More specifically from the platform-cost perspective, if decision makers perceived RPA could save the nation money over time due to highly probable advancements or developments, they would pursue the systems because potential long-term benefits outweighed the costs. Another explanation is that decision makers may have selected RPA because of their lower operations and maintenance (O&M) costs, versus manned aircraft. Finally, national leaders could have rationally expanded RPA because they perceived the systems were a small price to pay in considerably more expensive military campaigns. In other words, some decision makers may have examined the total cost of waging war and observed that RPA represented a fraction of the total cost. Ultimately, there are a number of value maximizing monetary reasons why the nation would decide to increase RPA, versus other similar manned systems in a financially constrained environment.

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[5] White House, *NSS 2010*, 34.
[6] White House, *NSS 1998*, 23.
[7] This is an oversimplification of the rational actor model, but consistent with the basic premises of value maximizing states actions for security. Money is a major contributor to innovation and security. If RPA helped save the nation money, one would expect to see the inventory increase if the perceived costs to the nation decreased.

Alternative Perspectives—Prospect Theory and Domestic Politics

Jack Levy and Daniel Kahneman have pointed out that decision makers do not always make choices or behave according to all of the logical assumptions of rational models such as expected-utility theory.[8] History reveals and research indicates that decision makers also make choices that may appear irrational or illogical and are less influenced by objective economic decisions than described above. Critics of expected-utility theory suggest that decision making may also be related to social and political factors related to decision maker's own perception of risk.[9] Here, decision making can be quite subjective. Therefore, an alternative explanation known as "prospect theory" emerges to fill the gaps where expected utility theory falls short.

Prospect theory helps explain some or the subjective reasons that policy makers and military commanders may have increased RPA. Prospect theory does not discount money all together it simply proposes that people tend to think in terms of gains and losses rather than in terms of net assets. Prospect theory is characterized by three additional elements that are investigated in this study. First, decision makers have a strong preference for certainty and may be willing to sacrifice money to achieve greater assurance with respect to decision.[10] Second, decision makers' value gains and losses differently; therefore, they may tend to be risk-averse with respect to gains and risk-acceptant with respect to losses, or vice versa. Finally, decision makers tend to under-react to low-probability events.[11] The major elements of prospect theory provide an alternative perspective for decision making under risk that can help explain why the nation would increase RPA for political or social reasons related to RPA, given the specific context of each case study.

The influence of domestic politics is also employed as a useful way to examine decision making. Matthew Baum offers a viewpoint that complements prospect theory and focuses specifically on the impacts of domestic politics on decision making, which may help more fully explains the cause of RPA expansion. Baum investigated how

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[8] Daniel Kahneman, *Thinking Fast and Slow* (New York: Farrar, Straus, and Giroux, 2011), 278-285, 419-425; Jack Levy, "An Introduction to Prospect Theory," *Political Psychology*, Vol.13, No.2, 1992, http://www.jstor.org/stable/3791677.

[9] Levy, "An Introduction to Prospect Theory."

[10] Levy, "An Introduction to Prospect Theory."

[11] Kahneman, *Thinking Fast and Slow*, 278-285, 419-425; Levy, "An Introduction to Prospect Theory."

domestic politics influenced leaders in international conflicts between 1946 and 1994. Though tangentially related to weapon systems growth, Baum's framework can be used to consider the domestic-audience costs of policy makers, commanders, and citizens, as well as and their opinion towards RPA proliferation. Baum argues that greater public scrutiny of a particular decision leads to greater potential political gains if a decision results in success, but also greater political loss in the event of failure.[12] Baum's ideas about domestic audience-costs appear to be applicable when one considers the potential ramifications of balancing RPA investments and inventory in light of a public opinion about the systems, the nation's overall strategy, and the war at large. Additionally, domestic politics appear to have helped drive upgrades and various new aircraft expansions in the past, such as stealth fighters and jet aircraft with more robust protection capabilities.[13] During the Vietnam War, early versions of RPA were rushed into war after pilots were shot down in order to avoid greater domestic backlash due to the perceived unwarranted loss of life.[14] Decision makers may have considered the same issues during recent conflicts in Kosovo, Iraq, and Afghanistan. From the NSS reports discussed above, prospect theory and domestic political concerns yield a second proposition that can be tested in each case study.

Proposition #2 Politics—The United States increased RPA due to political motivations. Both prospect theory and domestic politics would suggest that the rise of RPA was due to a number of political factors. In some instances increasing RPA would have been considered a politically risky endeavor, while in others it would have represented low risk. For example, in a conflict in which RPA had proven their subjective worth to most decision makers, the risk would be low to field more systems, while a war with high political stakes in which RPA were viewed as untested or more likely to fail would be considered more risky. The key point is that both theories allow for testing the possibility that politics could be a factor based on decision makers' changing perceptions of political risk and/or domestic opinion. Either political factor is

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[12] Matthew A. Baum, "Going Private: Public Opinion, Presidential Rhetoric, and the Domestic Politics of Audience Costs in U.S. Foreign Policy Crises," *Journal of Conflict Resolution*, Vol.48 No.5, October 2004 603-605.

[13] Thomas P. Ehrhard, *Air Force UAVs: The Secret History*, July 2010 Mitchell Institute Study, http://www.afa.org/publications/MitchellInstitutePapers, 38-40.

[14] Ehrhard, *Air Force UAVs: The Secret History*, 6-8.

personal in nature and would explain possible changes in perspectives and pursuits of RPA. For instance, decision makers relayed in the NSS reports that America's military was undergoing a transformation. Despite the changes, the 1998 NSS stipulated that the military must be prepared in short order to fight and win wars in two theaters, while the subsequent strategies relaxed the position but still focused on global wars against terrorism. From a political perspective, decision makers may have been more inclined to increase RPA in low-intensity conflicts in order to maintain other resources for high-intensity conflicts. They also may have perceived the systems were less threatening to other nations who would therefore allow access to their bases for conducting operations. At the same time, some policy makers may have become more risk acceptant over time in a particular conflict if they believed the possibility of RPA's failing was low due to proven accomplishments in past conflicts. Ultimately, prospect theory and domestic politics offer a second lens to explain more fully the complexity of increasing RPA operations. Both theories suggest there are a number of subjective political reasons why decision makers would choose to expand the nations RPA fleet, versus other similar manned systems in a dynamic, risky, and uncertain political environment.

A Final Alternative Perspective—Organizational Theory

Graham Allison and Philip Zelikow propose a third conceptual model for this study to use to examine the rise of RPA. The authors argue that decisions are not always the result of sole rational decision maker, whether value maximizing or focused on political pursuits. Allison and Zelikow posit that governmental behavior can be understood "less as deliberate choices and more as outputs of large organizations functioning according to standard patterns of behavior."[15] Similar to James March and Gareth Morgan, the authors contend that organizations see choices being made through the logic of appropriateness rather than the logic of consequences.[16] In other words, organizations make decisions based on familiar routines primarily established prior to the instance that are not necessarily based on rational consequences. Ultimately, organizations seek to make efficient decisions based on established norms, rules, or

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[15] Allison and Zelikow, *Essence of Decision*, 143.
[16] James G. March, *A Primer on Decision Making: How Decisions Happen* (New York: The Free Press, 1994), 2, 45, 57. Gareth Morgan, *Images of Organization* (Thousand Oaks, CA: Sage Publications, 2006), 149-163.

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routines, which presents challenges and opportunities to force posture considerations like increasing America's RPA inventory.

In *Images of Organization*, Morgan examines some of the challenges and opportunities of organizational decision making.[17] Morgan argues that multiple metaphors can be helpful in assessing how and why organizational decisions are made as well as some of the implications. In one example Morgan describes organizational decision making as a political system in which interests, conflict, and power collide to result in choices.[18] Morgan argues that a major motivator of organizational decision making in a political system is to increase control or power over scarce resources. Organizations create and fight for capabilities for a variety of logical reasons such as the ability to accomplish combat objectives in the case of military organizations.[19] Better results yield a larger budget and a further increase in capability. But organizations responsible for national security also have strong beliefs about the capabilities that will help them best achieve their missions, which are just as subjective politics.

Allison and Zelikow contend that a national organization perceives "problems, processes information, and performs a range of actions with considerable autonomy."[20] Organizational theory suggests the rise of RPA may have been related to more actors than the previous theories propose and that those organizations might have more power and influence than the nation's appointed civil and military leaders. It also suggests that logical, deliberate choices related to costs and benefits or even politics at the national level may have been less influential than RPA capability to achieve mission objectives. Organizational theory bridges a gap from the previous theories examined because it helps to explain how different organizations perceive RPA capability also impacts decision making. The perceptions of military weapons capability could potentially drive different organizations within the nation to field more or less RPA, which generates a final proposition for this thesis.

Proposition #3 Capability—The United States increased RPA because of the capability it provided to key domestic organizations. Organizational theory suggests

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[17] Morgan, *Images of Organization*, 149-163.
[18] Morgan, *Images of Organization*, 149-163.
[19] Allison and Zelikow, *Essence of Decision*, 145.
[20] Allison and Zelikow, *Essence of Decision*, 166.

that different civil and military organizational priorities influence implementation of particular decisions. Therefore, some organizations would have been more or less engaged in expanding America's RPA inventory based on the perceived capability of the systems to achieve mission success both in the short and long terms. Similarly to political factors, capability is a biased factor that is organizationally dependent and can change over time as the organization's identity or culture shifts. For example, when the Air Force focuses on air superiority and invests in capabilities it believes are required for national security, those efforts do not necessarily completely support the mission requirements of the Army or other government agencies. Each organization is permitted by national leaders to conduct a large part of its routine procedures and weapon system development without significant oversight, which results in choices that are best for the organization. As RPA capability advanced according to the needs of a particular organization, one would expect to see greater advocacy, investment, and inventory of the systems. Also, as organizations adapted their operations and began to depend on RPA capabilities, logic suggests that there should have been an increase in demand for those platforms and capabilities.

Conclusion

Studying the rise of RPA is important for theoretical, political, and strategic reasons. Rational-actor models, prospect theory, domestic politics, and organizational theory all provide different perspectives to consider the decision-making process in the case studies that follow. Each model focuses on key players, objective and subjective elements, as well as the context of the decision making process. There is much scholarly debate about how or why decisions are made about increasing national assets like RPA, but there is little debate about the importance of engaging in this type of study. The international community watched America increase RPA operations over the last few decades, whether due to money, politics, and/or capability. Additionally, key leaders up and down the military and civil chains of command also observed and in some instances likely participated for one or more of the reasons investigated. The next three chapters tests the propositions discussed in this section beginning in Kosovo.

Chapter 2

Kosovo, 1999

During Operation Allied Force, Unmanned Aerial Vehicles (UAVs) came of age.
—Dr. Michael G. Vickers

Precision munitions enabled NATO airpower to set the standard for minimizing collateral damage for airpower in the future.
—General John P. Jumper

Introduction

This chapter is the first of three case studies that tests the variables proposed in the previous section. According to Dr. Michael Vickers (the current Under Secretary of Defense for Intelligence), operations in Kosovo contributed to long-term, optimistic perceptions about RPA. Air Force leaders such as General John Jumper, Commander of United States Air Forces in Europe during Operation Allied Force (OAF) and later the USAF Chief of Staff, were cautious and pragmatic in their response and fielding of the systems during and after the conflict. General Jumper was likely circumspect about the future impact and benefit of widely fielding RPA based on their limited performance and effectiveness during OAF. It is evident that decision makers focused on advancing and employing weapon systems that they believed helped effectively, efficiently, and decisively achieve the operational and political objectives. RPA played a small but somewhat promising role in that endeavor. Ultimately, OAF was a field experiment that explored the utility and efficacy of RPA. RPA were rapidly fielded with very little testing, but the technology and some of the conditions of the conflict gave them an increasingly desirable capability. Despite their relatively small impact, RPA garnered further attention and funding. Therefore, Kosovo provides a valuable case for studying the proliferation of RPA to multiple government organizations in the following decade.

Background

On 24 March 1999, the North Atlantic Treaty Organization (NATO) initiated an air war against the Federal Republic of Yugoslavia, which included RPA from multiple

nations.[1] Thirteen out of nineteen NATO nations committed aircraft to an operation that lasted for seventy-eight days. RPA operations, however, continued after the conclusion of OAF to aid in follow-on humanitarian assistance efforts.[2] OAF marked the largest global employment of RPA in military history; nevertheless, overall numbers were low. Germany, France, Great Britain, and the United States employed approximately one hundred RPA throughout the course of OAF, including five new and more capable RQ-1 Predators from the 11th Reconnaissance Squadron in Indian Springs, Nevada, which were added to the inventory during the first week of the conflict.[3] Ultimately, three different types of American RPA—the Air Force's RQ-1 Predator, the Army's RQ-5 Hunter, and the Navy's RQ-2 Pioneer, flew just under 500 missions out of the 30,018 flown by the United States Air Force (USAF) during OAF.[4]

In *NATO's Gamble*, Dag Henriksen argues that Kosovo was "conceptually different from any other war throughout history."[5] Each element assessed by Henriksen likely impacted the decision-making calculus of national leaders who elected to increase the number of aircraft committed to the air war in the first month by over 1,000; however, no additional RPA were added to the fight following their initial deployment.[6] OAF was the first air war NATO had engaged in against any sovereign nation since its establishment. It was also the first major combat operation conducted for humanitarian objectives—expressly designed to stop genocide—despite the fact that the Federal Republic of Yugoslavia had not attacked any alliance members or its neighbors.[7] Finally, it was the first operation of its size fought solely with airpower, ground forces having

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[1] Belgium, Canada, Denmark, France, Germany, Italy, the Netherlands, Norway, Portugal, Spain, Turkey, the United Kingdom, and the United States participated in the air war. The United States, France, Germany, and the United Kingdom employed RPA in OAF. See William Arkin, "Operation Allied Force: 'The Most Precise Application of Air Power in History,'" in *War over Kosovo: Politics and Strategy in a Global Age* ed. Andrew Bacevich and Eliot Cohen (New York: Columbia University Press, 2001), n1, p29.

[2] William Arkin, "Operation Allied Force: 'The Most Precise Application of Air Power in History,'" in *War over Kosovo: Politics and Strategy in a Global Age* ed. Andrew Bacevich and Eliot Cohen (New York: Columbia University Press, 2001), 1.

[3] JD R. Dixon, Lt Commander U.S. Navy, "UAV Employment in Kosovo: Lessons for the Operational Commander," Naval War College Research Paper, search title and/or author name http://www.dtic.mil/dtic/tr/fulltext/u2/a378573.pdf, 4.

[4] Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: Rand, 2001), 63

[5] Dag Henriksen, NATO's Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis, 1998-1998 (Annapolis, MD: Naval Institute Press, 2007), ix-xii.

[6] Tony Mason, "Operation Allied Force," ed John A. Olsen, *A History of Air Warfare*, 240, 245.

[7] Arkin, "Operation Allied Force," 1.

been ruled out for political reasons from the outset.[8] Faced with a problem of how to end the conflict cheaply, quickly, and decisively, the United States selected the air component as the primary instrument of power, just as it had in Bosnia.

The weapons of choice for the nation, as General Jumper pointed out in the epigraph, were precision-guided munitions, which did not include RPA. Despite increases in budgetary, political, and organizational support following their perceived success in helping defeat Milosevic in Bosnia just years prior, RPA were technically limited in many respects and unable to contribute significantly to the fight. One of their biggest limitations was providing accurate and timely battle-damage assessments. Furthermore, although manned aircraft were more expensive than RPA, they provided the nation with a proven conventional capability that allowed the President and the senior military commanders to target and attack enemy forces and their supporting infrastructure accurately, while minimizing collateral damage. RPA offered leaders a modestly persistent platform to find and track targets, but they ultimately struggled to fix targets and were incapable of finishing or killing a threat because they were unarmed. Not only were RPA unarmed, they also lacked a laser designator or similar targeting capability, and they passed insufficient video and data information to manned platforms and other key warfighters.

Increased RPA capabilities and system advancements could have been significant in Kosovo. America suffered political setbacks as the media documented accidental civilians casualties on strike missions, such as the bombing of the Chinese embassy in Belgrade.[9] Additionally, in some cases both manned fighters and RPA struggled with weather, engagement rules, and technical limitations to distinguish between civilians and combatants. Each of the unsuccessful missions probably impacted objective and subjective perceptions of RPA and their utility in OAF. Faced with a choice of fielding more RPA, or employing other more capable and organizationally acceptable emerging technologies, decision makers chose the later for both rational and predisposed reasons. Achieving a balance between emerging and proven capabilities organizationally was always a factor. Weapons systems like the F-117 and B-2 represented the Air Force's

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[8] Henriksen, *NATO's Gamble,* ix.
[9] Mason, "Operation Allied Force," 240-242. The Central Intelligence Agency provided out of date targeting information for the Yugoslav army headquarters on the Chinese embassy erroneous bombing.

focus. Thus, RPA were competing against other major weapon systems in which civilian and military organizations had invested heavily.

Notwithstanding the large monetary price tags for stealth fighters and precision weapons such as Tomahawk missiles, the military experienced a period of economizing under the Clinton Administration. But, OAF was virtually unaffected economically because decision makers elected to increase funding for war efforts at the start of the conflict. Decision makers supported increases in multiple weapons fielding and advancements in both manned and RPA platforms. American citizens were politically and socially detached from the war in Kosovo despite national leader's emphasizing the genocide occurring throughout the former Yugoslavia. Military decision makers were divided about whether the Presidential Administration was engaging in a politically risky war and whether the nation should rely on airpower alone, but they largely agreed that conventionally manned weapon systems offered the best chance for political and military success. OAF also offered Air Force leaders an opportunity to test, observe, and display its advancing airpower capabilities to the nation, its allies, and potential adversaries. In some ways the conditions of the conflict appeared ideal for the rise of RPA.

Money

If money alone were a driving factor in weapons selection and employment in Kosovo, one would expect to see a major increase in RPA because they were relatively inexpensive compared to similar manned systems at the time.[10] Nevertheless, American leaders believed manned weapon systems that could minimize collateral damage through precise targeting could help achieve political objectives were worth increased costs, based on the benefits they provided to the nation. America's civil and military leaders assumed Milosovic would surrender in a matter of days; thus, persistent reconnaissance was important, but not a priority. Secretary of State Madeline Albright spoke for the nation conveying a clear message in a television interview on the night that the air attacks began, "I don't see this as a long-term operation."[11] As expected, the air war commenced with a mixture of precision weapons employed by various of airpower assets, including

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[10] DARO, *The Defense Airborne Reconnaissance Office Unmanned Aerial Vehicle (UAV) Annual Report FY1996*, DARO Annual Report to Congress November 1996, https://www.fas.org/irp/agency/daro/product/index.html.

[11] Quoted by John T. Correll in "Assumptions Fall in Kosovo," *Air Force Magazine*, June 1999, http://www.airforcemag.com/MagazineArchive/Pages/1999/June%201999/0699edit.aspx.

cruise missile attacks, B-2 stealth bombers, F-117 stealth fighters, and additional strike aircraft from most of the participating NATO nations, which did not include RPA, chiefly because they were not armed at the time.[12] General Wesley Clark, Supreme Allied Commander in Europe, asked for more manned-strike and reconnaissance aircraft two weeks into the conflict, indicating that the scale and task of the conflict had been underestimated and that military commanders were willing to pay for more capability.[13] Additionally, just over twenty days into the war, President Clinton recognized it might not end as quickly as expected and that it was not going to be cheap. Therefore, he asked for and received from congress $5.458 billion in emergency funding for OAF, with $3.6 billion to cover air operations through the end of the fiscal year, $698 million for precision weapons and additional cruise missiles, and $335 million for refugee assistance.[14] None of the money was specifically designated for RPA operations, particularly fielding or growing its inventory, despite the fact that RPA were less expensive in multiple respects than similar manned systems.

A direct cost comparison of RPA and similar manned systems demonstrates that for every RPA America used to fly in place of similar manned aircraft, it could have saved a significant amount of money during OAF. In 1999, the most expensive RPA in the United States inventory was the RQ-1 Predator, which cost approximately $3.2 million dollars per aircraft. Although the Predator was more expensive than the Hunter or the Pioneer, which cost $1.2 million and $750,000 respectively during OAF, all of the RPA systems combined were almost five times cheaper than one Navy F-14 Tactical Airborne Reconnaissance Pod System (TARPS).[15] The F-14 TARPS was $40 million for the aircraft and pod, and was the most comparable manned-reconnaissance platform during previous operations in Iraq.[16] Dozens of RPA with various capabilities could have been purchased for the price of one F-14 TARPS. Yet, these aircraft cost comparisons

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[12] Arkin, "Operation Allied Force," 8.
[13] Mason, "Operation Allied Force," 238.
[14] Lambeth, *NATO's Air War*, 36.
[15] Kenneth Munson, *Jane's Unmanned Aerial Vehicles and Targets*, Issue Eleven (Alexandria, VA: Jane's Information Group, 1999), 41, 62, 72, 149, 217.
[16] Munson, *Jane's Unmanned Aerial Vehicles and Targets*, 41, 62, 72, 149, 217. Also, Lt General Short, NATO's Joint Forces Combined Air Component Commander during OAF stated in a PBS interview that reconnaissance version F-16s were also used in OAF, no price data was found in the researched sources, but it can be assumed they were more expensive than the F-14 TARPS. Lt Gen Short quoted in PBS interview, http://www.pbs.org/wgbh/pages/frontline/shows/kosovo/interviews/short.html.

fail to take into account other monetary factors that may have turned decision makers away from RPA, such as their loss rate over the skies of Kosovo.

Despite substantial numbers of operational losses, RPA still could have saved America money compared to manned aircraft. The United States lost fourteen Predator, Hunter, and Pioneer RPA combined during the air war, the majority being destroyed by enemy fire.[17] Collectively, the loss of American RPA totaled approximately $23 million, which is well below the cost of the two manned aircraft, a single F-16 and F-117, which were shot down during the conflict. Although no definitive information exists about the particular missions when the RPA were lost, operational commanders and/or national leaders received some basic benefits from the relatively inexpensive systems. For instance, RPA provided a significant increase in persistence, based on the short distances from takeoff to mission areas where they performed intelligence (including signals intelligence), surveillance, and reconnaissance and assisted with imaging and/or targeting along the way.[18] In contrast, the F-16 and F-117 that were lost may have provided decision makers with some benefits if they were able to attack targets prior to their loss; however, the cost of losing the technology associated with the fighters to the Milosevic regime or other international players would have been more significant. US stealth and fighter technology were significantly more advanced than the rest of the world at the time. The F-117 alone was estimated to be worth approximately $43 million.[19] Again, while RPA losses were significant in Kosovo, they would have cost America less money than the price of a single F-16.

A point that further validates that money was less of an issue for military leaders is manned aircraft were given strict ROE that did not apply to RPA. One of the rules levied by commanders on manned aircraft was that coalition forces would fly all missions above 15,000 feet unless given permission to deviate. In contrast, RPA were expected to fly below the restricted altitude to meet mission requirements, such as stimulating Serbian integrated air defenses, scouting enemy ingress and egress routes, identifying targets for strike platforms, or providing preliminarily battle damage assessments. In one

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[17] Dixon, "UAV Employment in Kosovo," 10.
[18] Lambeth, *NATO's Air War*, 93-95.
[19] Lambeth, *NATO's Air War*, 116. Jeffrey Rhodes, "The Black Jet," in *Air Force Magazine* Jul 1990 Vol 73, No 7, http://www.airforcemag.com/MagazineArchive/Pages/1990/July%201990/0790blackjet.aspx.

example, RPA were flown as low as 1,000 feet above enemy troops in order to gather timely imagery and facilitate A-10 and F-16 strikes against the targets.[20] Tony Mason also noted in his assessment of OAF that the persistent loiter capability (upwards of twenty hours) of Predator RPA actually helped deter enemy ground movement at times because the Serbs recognized the capability of RPA to coordinate strikes with manned aircraft.[21] Ultimately, RPA were continuously placed in harm's way, while decision makers sought to preserve manned weapon systems.

Even with the ROE altitude restriction, two manned aircraft were shot down. The F-117 was shot down on the fourth day of the war, while the F-16 was destroyed in May toward the end of the conflict. From a financial standpoint, the loss of both manned weapons systems should have provoked decision makers to increase the fielding or use of RPA, but neither occurred. Ultimately, Ben Lambeth concluded in his strategic and operational assessment that RPA losses were expected and even caused by commanders requesting closer looks at fleeting targets, which forced RPA to descend into hostile "Serb AAA and man-portable air defense systems."[22] Then Secretary of Defense William Cohen and General Henry Shelton, Chairman of the Joint Chiefs of Staff, confirmed Lambeth's conclusion in a prepared statement for congress shortly after OAF concluded: "UAVs are designed deliberately to be expendable, with acceptable cost a higher priority than survivability."[23] Based on this evidence, the price of RPA did not play a major role in the decision-making process of national leaders, particularly military commanders in Kosovo.

Politics

Unlike money, politics appears to have played a larger role in the lack of RPA expansion in OAF. Although America's strategy, objectives, and other contextual conditions appeared to increase the desire for RPA, key subjective political factors explain why the nation decided to maintain a small inventory. America's response to manned aircraft losses provides some insight on the political views about RPA, versus manned platforms, used in the conflict. For instance, in Vietnam national leaders became

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[20] Lambeth, *NATO's Air War*, 94.
[21] Mason, "Operation Allied Force," 249-250.
[22] Lambeth, *NATO's Air War*, 94.
[23] William Cohen and Henry Shelton in *Joint Statement on the Kosovo After Action Review*, DefenseLink News, 14 October 1999, http://www.au.af.mil/au/awc/awcgate/kosovoaa/jointstmt.htm

so risk averse in particular instances to domestic concerns of losing pilots that they decided to ground manned U-2 flights, while rapidly fielding and flying RPA as a substitute on similarly risky missions.[24] In Kosovo, on the other hand, decision makers elected to continue flying F-117 and F-16. In the instance of the F-16 shoot down, the pilot was recovered and flew a combat mission the next day.[25] The political cost of losing pilots may not have changed since Vietnam, but the dominant perception was that the risk of losing a pilot was low due to two primary subjective reasons. The manned shoot downs were considered failures in US planning as opposed to superior enemy integrated air defenses.[26] Additionally, America was able to recover both pilots, increasing decision makers' confidence that the nation could successfully conduct combat search and rescue missions if required and save pilots prior to their being captured or killed by the enemy.[27]

RPA were not considered a worthwhile or necessary resource to counter the propaganda value of pilots being shot down, killed, or captured. Although the lives of fourteen pilots were likely saved in the case of the RPA that were lost in combat, the fact that only two American pilots were shot down and that both were recovered in a matter of hours, simply served to intensify decision makers beliefs that pilots were not in danger of losing their lives. As a result there was no public or military demand for a substitute like RPA to preserve the lives of American pilots, but there were political debates about why manned aircraft were shot down.

Three notable military leaders argued that pilots were primarily vulnerable to enemy ground defenses because of political restraints. Lieutenant General Michael Short, NATO's Joint Forces Combined Air Component Commander (JFACC) during OAF, affirmed this opinion in an interview following the conflict: "Airmen would like to have gone after that target set [Serbian leadership] on the first night and sent a clear signal that we were taking the gloves off from the very beginning, that we were not going to try a little bit of this and see how you like it and try a little bit of that and see how you

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[24] Ehrhard, *Air Force UAVs The Secret History*, 6.
[25] Personal interview with Lt Gen David Goldfein, 1 May 2013.
[26] Lambeth, *NATO's Air War*, 116-120.
[27] Lambeth, *NATO's Air War*, 118-120.

like it."[28] General Clark also directed operational commanders to mitigate loss of aircrews and aircraft in a videoconference prior to the start of the conflict due to political restraints. According to Clark, losing aircraft more so than aircrew "drove our decisions on tactics, targets, and which airplanes could participate. But I was motivated by a larger political-military rationale. If we wanted to keep this campaign going indefinitely, we had to protect our air fleet."[29] Although not directed toward RPA specifically, General Richard Hawley, Commander of Air Combat Command during OAF, also placed the blame of pilots being shot down on failed intelligence possibly negatively impacting commanders' views of RPA. But he ultimately advocated for more manned aircraft: "when you have a lot of unlocated threats, you are at risk even in a stealth plane."[30] Military commanders agreed that they lacked sufficient intelligence about ground threats, could not target the threats due to political restraints, and required more manned aircraft to suppress enemy air defenses. Therefore, as they focused on traditional conventional capabilities, military leaders elected to increase manned platforms not RPA.

What is missing from the generals' discussions is that another way to counter the threat would have been to use RPA for suppressing or defeating enemy integrated air defenses; however, none existed in America's inventory at that time and none were rapidly fielded during OAF. Instead of developing or fielding more RPA for the missions, the commander of Air Combat Command requested an expansion of new F-16CJs, designed deliberately for suppression of enemy air defenses, from 30-100.[31] At the time, military commander turned to the weapon systems that were most familiar and had proven themselves in previous conflicts. Manned aircraft such as the F-16CJ had consistently demonstrated an ability to counter enemy air defenses; they also provided commanders with a multi-role platform, versus RPA that required major advancements to accomplish both suppression and destruction of the ground targets.

Conceivably adding to the perception that the nation did not need more RPA during OAF, any concerns decision makers may have had about receiving access to areas

[28] Quoted in Tony Mason, "Operation Allied Force, 1999," in *A History of Air Warfare*, ed. John Olsen (WA, DC: Potomac Books Inc, 2010), 247.

[29] Quoted in Tony Mason, "Operation Allied Force, 1999," in *A History of Air Warfare*, ed. John Olsen (WA, DC: Potomac Books Inc, 2010), 239.

[30] "Washington Outlook," *Aviation Week and Space Technology*, 3 May 1999, 21.

[31] "Washington Outlook," *Aviation Week and Space Technology*, 24 May 1999, 27.

from which to base and stage RPA operations never amounted to any sort of barrier in Kosovo. Nor was there any public outcry from domestic or international groups about RPA operations, probably because RPA were unarmed and viewed as unassuming tactical intelligence gathering platforms playing a small role in a conflict where the media primarily publicized the successes and failures of manned aircraft. Kosovo civilians and American decision makers were used to seeing a small inventory of modestly capable RPA flying ISR missions over Yugoslavia since the earliest days of the Bosnian conflict in 1993. Additionally, RPA had been disseminating video data and information to the Combined Air Operations Center (CAOC) in Vicenza, Italy since 1994. RPA had also been disseminating some information to the Joint Analysis Center in Molesworth, England for routine analysis, evaluation, and subsequent targeting.[32] Therefore, permission to operate in allied nations was received well prior to the operation and never a concern for commanders during OAF.

Capability

Critics may argue from a capability perspective that RPA were incapable of flying strike missions at the time and thus could not replace manned aircraft on especially risky missions. Their statements are partially valid. Yet Dr. Vickers pointed out that Israel had loaned America a bomb-dropping RPA during OAF—called the "Harpy"—and that decision makers decided not to use it for strike missions because of concerns that it might violate portions of the nuclear-treaty agreement with the former Soviet Union.[33] In this respect, money was not a factor, but both politics and capability were mixed into the debate. In the case of the F-117 mission, it is highly unlikely that a Harpy could have been sent in to achieve the desired effect. But toward the latter part of the war, when mission planners were running out of targets to strike, using a Harpy to replace an F-16, may have been a cheaper and more politically expedient alternative. Ultimately, the decision not to employ the Harpy because of an international treaty also suggests that political reasons may have affected the rise of RPA, or at least the growth of potential

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[32] Dixon, "UAV Employment in Kosovo," 4.
[33] Michael G. Vickers, "Revolution Deferred," 206-207 n.13. Policy makers and military commanders wrestled with the language of the Intermediate Nuclear Forces Treaty established between the former Soviet Union and the United States. Following the Kosovo conflict, President Clinton relaxed the nations position on the treaty and President Bush authorized the arming of Predator shortly after his confirmation.

strike capable RPA. However, Air Force initiatives and RPA shortcomings discussed below counter the purely political argument.

Additional evidence also supports the idea that RPA were considered incapable and therefore were not proliferated. For example, most RPA at the time could not fly above the 15,000 feet restriction levied by commanders. Even still, some of the RPA were shot down, while others crashed on takeoff and landing due to the inexperience of operators and failures to change routing procedures for takeoff and landing. Also, some of the smaller RPA, such as the Pioneer and Hunter, were shot down by Serbian Mi-8 HIP aircrew that developed a tactic to fly alongside the RPA and shoot them down using a simple but effective door gun.[34] Each of these shortcomings demonstrated to decision makers the deficiencies of RPA and highlighted an inability to integrate them into operational planning.

RPA capability deficiencies were more significant than inexperience and ROE constraints. Each of the RPA system components also presented substantial challenges for decision makers, particularly operational commanders. As mentioned above, commanders were focused on fielding and utilizing decisive strike resources to drive Milosevic to the diplomatic table as quickly as possible. Yet even the most advanced RPA—the Predator—was ill prepared to assist in the fight. For example, in an operational and logistical study of the air war, Dr. Albert Atkins argued that in a rush to rapidly field the Predator no ice mitigation system was incorporated into the aircraft. This was a significant because operations were impacted by severe weather for over half of the seventy-eight day air war.[35] In addition, on the days when weather was above the minimums required to conduct operations, or even on some clear days, early model Predators were frequently prevented from flying missions because of their susceptibility to icing even at low altitudes.[36] Flying in icing conditions is a requirement to accomplish even the most basic mission, especially operations in which time is a critical element. Not flying due to icing on a clear day would certainly decrease an operational commander's appreciation of RPA. In contrast, significantly more expensive and

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[34] Dixon, "UAV Employment in Kosovo," 10.
[35] Albert Atkins, *Air War over Kosovo: Operational and Logistical Issues of the Air Campaign* (San Jose, CA: Writers Club Press, 2000), 17, 101.
[36] Lambeth, *NATO's Air War*, 95.

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innovative manned assets like the B-2 demonstrated superior capability to flex to new targets, fly above or through weather, and employ its synthetic aperture radar (SAR) during poor weather when other allied combat aircraft were grounded.[37] As a result, although the B-2 flew fewer than 50 missions during the conflict, decision makers were able to rely on the B-2 SAR to eliminate large target errors from other strikes by aircraft.[38]

In addition to having no icing mitigation capabilities, the early model Predator also had radio and transponder problems. Both systems were considered minimum essential items for manned aircraft during the operations, but they were unreliable and often did not work on Predator. As might be expected, both issues had second-and-third-order effects. For example, all RPA were required to fly procedural takeoffs and landings in order for air traffic controllers and military planners to prevent crashes between manned and unmanned aircraft.   Additionally, RPA missions over the course of the war were restricted to designated airspace, which increased their likelihood of being shot at because of regular and predictable flights over the same area.[39] Most of the Coalition's RPA were shot down in a single week because of their frequent missions over the same terrain.[40] If RPA radio and transponder problems were resolved, they probably would have been able to fly in other less predictable areas and patterns, providing increased agility and flexibility to planners and commanders.

Additional capability shortcomings may have diminished commanders' views of RPA while bolstering their opinions of manned assets that were consistently achieving mission objectives. First, the upgraded Predator RPA arrived late to OAF. This was due to three primary reasons. The Air Force decided not to send Predators to Kosovo because the contractor failed to provide updated technical manuals and data with the new system, which would be a grounding item in manned aircraft. Additionally, based on the icing, radio, and transponder problems of the first models, the Air Force was not inclined to rush another unproven system into a fight that most leaders believed would be over in a week. Finally, the Air Force was engaged in an organizational debate about how the

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[37] Lambeth, *NATO's Air War*, 90-92.
[38] Lambeth, *NATO's Air War*, 90-92.
[39] Lambeth, *NATO's Air War*, 97.
[40] Lambeth, *NATO's Air War*, 97.

Predator acquisition process was being managed and whether or not the system should be treated similarly to manned systems with more checks and balances and deliberate oversight.[41] The political battle was understandable, RAND had just conducted a study in 1997 that identified several major shortcomings in the basic capabilities of Predator and its previous advanced-fielding process. Thus operational commanders would have been less concerned about why Predator was delayed in coming to the fight and more troubled about why it was still limited in the basic capabilities required.

When Predator finally arrived in theater, additional shortcomings influenced opinions about its efficacy. It took over a week to get the first upgraded Predator airborne.[42] Lambeth found that "undisclosed technical difficulties" caused the delay. Yet RAND had already identified some plausible reasons that seemed to plague the Predator throughout its deployment two years earlier: lack of training documentation, heavy reliance on contractor support, and inexperience in both contractor and aircrew support and operations.[43] Because the Air Force had a limited quantity of RPA resources at the time, any mistakes or deficiencies of the Predator would possibly have been even more evident and recognized by operational commanders.[44] Taking a day or two to work out technical issues may have been acceptable to some commanders, but not to senior operational commanders such as General Clark, General Moseley, and General Short who were leading a coercive air war focused on delivering timely, accurate, decisive airpower. Predator would have been criticized because of its lack of ability to fly a single mission a week after arriving in the theater. Both conventional and special organizations conducting operations in Kosovo turned instead to proven and reliable weapons systems that were more readily available.

Predator's inadequate communication architecture also influenced neglect in Kosovo. Following Bosnia, operational commanders expected Predator to be able to collect and disseminate data and imagery rapidly to just about anyone anywhere, from warfighters on the battlefield, to operational commanders in theater, to component

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[41] Richard Whittle, *Predator's Big Safari*, Mitchell Paper 7 August 2011, www.afa.org/Mitchell, 9-11. Michael Thirtle, Robert Johnson, and John Birkler, *The Predator ACTD: A Case Study for Transition Planning to the Formal Acquisition Process* (Santa Monica, CA: Rand, 1997), xiii-xxi.
[42] Lambeth, *NATO's Air War*, 97.
[43] Thirtle, et.al, *The Predator ACTD*, xviii.
[44] Atkins, *Air War over Kosovo*, 17-20, and Whittle, *Predator's Big Safari*, 9-16.

commanders stateside, to Pentagon leaders, and other government organizations. But only a small group of individuals, primarily non-military personnel, had the technical expertise to ensure the information was disseminated. Thus, many customers in that chain of players were unable to receive Predator's video or data information, the first, and arguably most important group of personnel being the manned-aircraft pilots that Predator was supporting.[45] Richard Whittle described the problem clearly in his study on the how the Predator was advanced as a result of lessons learned during Kosovo: "Pilots of manned aircraft had no way to see the Predator's video, and controllers who could see it in the Combined Air Operations Center (CAOC) at Vicenza, Italy, quickly found it was nearly impossible to talk pilots onto targets the RQ-1 spotted. Even a pilot who could see the Predator itself had no way of knowing where its camera was pointing."[46] Whittle's conclusions demonstrate some of the technical limitations of RPA. But operational commanders did not rush to field more Predators, were not fully aware of its deficiencies, and did not seek fixes to the system, all of which could have helped the war effort in Kosovo.

Nine days into the conflict, General Michael E. Ryan, Air Force Chief of Staff, responded to a request by General Jumper and General Short to advance and rapidly field a new Predator capability. The operational commanders provided General Ryan with key information about how to improve Predator's cross-cueing capability for manned aircraft to strike targets. Warfighters were unhappy with the battlespace support provided by Predator because of its inability to relay information either through video or radios to pilots of manned aircraft. Without Ryan's subsequent financial investment, the system would have continued to provide the same limited capability it offered after a delayed start a week into the campaign.

General Ryan directed Big Safari, an innovation arm of the Air Force, to find a solution to Predator's dissemination and targeting shortcomings. Big Safari provided three major technical answers. The first solution was for customers in the CAOC in Italy. Big Safari had an expert build a new overlay on a digital terrain map showing the exact position of the Predator's sensor pod, along with the aircraft position, both in real time,

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[45] Whittle, *Predator's Big Safari*, 12.
[46] Whittle, *Predator's Big Safari*, 12.

which made it easier for the CAOC to direct manned assets to targets identified by Predator.[47] Without the lone contractor who had the technical expertise to build what is now the backbone of Predator data dissemination, called Exploitation Support Data (ESD), the CAOC, other operational commanders, and manned aircrew would have had to rely Predators being complemented by unreliable radios and aircrew with little-to-no experience to direct manned aircraft onto targets.

In an effort to equip the warfighter more effectively, Air Force leaders also directed Big Safari to install a laser designator on the Predator. Big Safari's solution was acquired from the Navy shortly after the recommendation was approved. Testing was accelerated, and the first laser-equipped Predator was deployed to Kosovo within four weeks.[48] Milosevic surrendered one day after the upgraded Predator flew its first combat mission. Key Air Force leaders, particularly General Jumper, future Chief of Staff, recognized predator's potential and accelerated its developmental process.

General Jumper continued several initiatives and advanced Air Force perspectives about how to use RPA in ways that enhanced the capabilities of warfighters in Kosovo. Following Kosovo, Jumper and other commanders such as General Short began seeking new ways to use RPA to reduce the "kill chain," or time required to find, fix, track, target, engage, and destroy targets. The Air Force determined that an efficient way to shorten this time was to make RPA capable of being both a sensor and shooter.

In Kosovo, Predator left a favorable, but tempered, impression in the minds of Airmen up and down the chain of command. If Predator had laser designation and strike capabilities onboard from the start of the war, decision makers might have expanded the fleet. However, because decision makers perceived Airmen were never seriously at risk of being killed or captured, nor were any ground forces in danger, the limited capability of RPA never challenged the established rational and subjective views of decision makers about the system's capabilities versus those of manned aircraft. Former Secretary of the Air Force Donald Rice's observation that the B-2, although one of the most contentious weapons in the US inventory was "proving to be the nation's single most cost-effective

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[47] Whittle, *Predator's Big Safari*, 12.
[48] Walter J. Boyne, "How the Predator Grew Teeth," in the *Air Force Magazine* July 2009, 43-44.

attack aircraft," supports the argument against any potential for RPA expansion.[49] As will be examined in future case studies, it took General Jumper several years before he demanded a major increase in RPA assets, an indication that system capability was inadequate to counter the most emerging threats had changed little since Kosovo. In Kosovo, however, General Jumper was correct about the limits of RPA. Jumper's decision not to expand the fleet, but rather to improve its capability for future conflicts and threats proved vital to its contribution in Iraq, Afghanistan, and bordering Pakistan.

Conclusion

The evidence shows that politics and capability kept RPA from expanding in Kosovo, while money played virtually no role. The argument that the system was simply too immature is partially valid. The upgraded Predator was untested, but its predecessor and other American RPA had operated for almost a decade prior to Kosovo. Additionally, some RPA in Kosovo were comparable in many respects to the systems used in Vietnam. But other RPA had advanced considerably adding more precise flying instrumentation and advanced takeoff and landing capabilities. Yet unlike Vietnam, policy makers elected not to field more RPA quickly when pilots were shot down in Kosovo. Additionally, RPA aircrews were inexperienced and the systems were limited by technical and tactical constraints. The major system elements of RPA had existed for years, but they were not a priority of decision makers who were focused on other conventional, manned assets. Kosovo helped increase RPA visibility throughout multiple organizations and groups of the government. Consequently, they were added to the prospective list of capabilities that could enable operational commanders to achieve success more quickly, cheaply, and decisively in the future conflicts. Nevertheless, political aims to coerce Milosovic using conventional air power in addition to major RPA systems limitations prohibited their expansion in Kosovo.

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[49] Lambeth, *NATO's Air War*, 93.

Chapter 3

Iraq, 2003-2011

I asked each man two questions: Do you have everything you need to win? And are you confortable with the strategy?

—President George W. Bush

The first order of business the summer of 2007 was to scour the world for additional capability. I was prepared to strip nearly every combatant command of much of its ISR to provide more to Petraeus...Nonetheless we rounded up every drone we could find that was not already deployed in Iraq.

—Secretary Robert M. Gates

Introduction

In Kosovo decision makers suspected that RPA might be a niche resource for the nation to use in future conflicts primarily because of their persistence and sensor capabilities. In Iraq, Air Force visionaries quickly turned their idea of a multi-faceted RPA as both a sensor and shooter into reality, which caught the eye of other national organizations. Predator and its successor Reaper were advanced into multi-role platforms employed to achieve objectives at all levels of military operations. Advancements in RPA capability propelled the systems to the top of list of weapons required by the warfighter. Although an argument can be made that money, politics, and capability all played a substantial role in the expansion of RPA operations, the evidence suggests that RPA played a larger role in Iraq than Kosovo based on their improved capabilities and the belief that those capabilities could better support forces on the ground.

Background

The Iraq War can be divided into multiple phases with major combat operations beginning on 20 March 2003. RPA were employed in key roles during each phase. Similarly to previous wars, in order to save money and lives, America procured, developed, and used the most efficient and effective weapons throughout the war, which by the start of major combat operations included a diverse combination of RPA and manned platforms. Airpower resources provided intelligence-collection and precision-strike capability, both of which were priorities of decision makers. For instance, based on intelligence believed to be accurate, on 19 March, President George W. Bush elected

to employ two F-117 stealth fighters on a decapitation strike mission to kill Saddam Hussein. On that day, the CIA received time-sensitive information that Hussein was suspected to be in the Dora Farms section of Baghdad.[1] Keith Shimko argues that President Bush decided to use the F-117 because it provided the possibility of winning the war with a "single bombing raid."[2] Unfortunately, neither national-intelligence assets nor the F-117 were able to determine that Hussein was not in the house. Shimko concludes, "Precision weapons are only useful if combined with accurate intelligence," which was a major issue that RPA helped decision makers mitigate in many instances throughout the war.[3] In Kosovo, decision makers relied on manned assets almost exclusively to wage the air-only war, risking F-117 and B-2 aircraft because the synthetic-aperture-radar capability improved target location and bombing accuracy. In Iraq, the presence of ground forces significantly increased the desire for persistent and precise RPA ISR and strike capability.

America's strategy in Iraq changed from that in Kosovo. The primary political objective in Iraq was regime change, rather than changing governmental behavior. The inclusion of ground forces in Iraq was also a major strategic change. Conventional and special-operations ground forces were employed jointly with airpower resources when the war commenced.[4] Yet, decision makers elected to commit fewer troops then in some wars past wars for four intimately related reasons. The Bush Administration sought to transform the military into a smaller, more agile, and efficient force. America was engaged in a global war, with forces, money, and resources in Afghanistan at the same time. National leaders were also worried about mass casualties in a questionable war. Ultimately, America elected to employ fewer ground forces in Iraq than in some previous conflicts because of its perceptions about the nation's advancing military capabilities, including RPA.[5]

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[1] Keith L. Shimko, *The Iraq Wars and America's Military Revolution* (New York: Cambridge University Press, 2010), 151-153.

[2] Shimko, *The Iraq Wars,* 151-153.

[3] Shimko, *The Iraq Wars,* 151-153.

[4] Walter J. Boyne, *Operation Iraqi Freedom* (New York: A Tom Doherty Associates Book, 2003), 281-285.

[5] Anthony H. Cordesman, *The Iraq War: Strategy, Tactic, and Military Lessons* (WA, DC: The CSIS Press, 2003), 315.

Emboldened by the success of the Afghan Model, President Bush and Defense Secretary Donald Rumsfeld believed a large fielded force was not required to defeat the Hussein regime.[6] Both leaders persistently conveyed to the nation and military leaders that they believed the superior combination of speed, precision, and situational awareness would win the nation's wars.[7] Weapon systems such as RPA were considered to be force multipliers after considering recent operational lessons learned, particularly in Afghanistan.[8] Decision makers recognized that RPA could provide vital battlespace awareness and information simultaneously to tactical ground forces, operational commanders, and the highest levels of the government, while also offering each group a flexible and precise attack capability. Some leaders believed the RPA combination of sensor and shooter capability provided the nation with the best chance of locating and killing fleeting high-value targets such as Saddam Hussein or al-Qaeda's highest leader in Iraq, Abu Musab al-Zarqawi. Nevertheless, although Hussein's regime was ousted quickly by a relatively small but highly lethal coalition force and RPA helped provide intelligence on his location, the maintenance and rebuilding of Iraq presented major strategic challenges for America's civil leaders and military forces. RPA offered the Presidential Administration and multiple organizations within the DOD some answers to a number of strategic, operational, and tactical challenges that resulted.

US joint forces were initially postured for conventional warfare in Iraq, which included a variety of RPA. In 2003, America's RPA inventory consisted of 10 different platforms and approximately 160 aircraft operating throughout Central Command (CENTCOM), the majority of which were located in Iraq when the war commenced.[9] RPA sizes varied from hand held tactical systems to jetliner sized strategic aircraft. Overall, five major RPA flew during major combat operations—the Air Force's Global Hawk and Predator, the Navy and Marine Corps' Pioneer, and the Army's Hunter and

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[6] The Afghan Model is discussed in depth in Chapter 5. The model combines a small, efficient, and highly lethal US special operations force, with CIA paramilitary personnel, and indigenous forces to effect regime change.

[7] Shimko, *The Iraq Wars,* 131, 139, 151 and Bob Woodward, *Plan of Attack* (New York: Simon & Schuster Paperbacks, 2004), 41.

[8] Woodward, *Plan of Attack*, 41.

[9] Elizabeth Bone and Christopher Bolkcom, *Unmanned Aerial Vehicles: Background and Issues for Congress*, CRS Order Code RL31872, 25 April 2003, http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA467807, 5.

Shadow RPA. From 2003 to 2009, America's RPA inventory increased from 160 to nearly 800 in CENTCOM operational areas, with the bulk staying in Iraq due to the emphasis on counterinsurgency operations and more significant terrorist threats than in Afghanistan. Additionally, two theater-level assets were developed and began operational flights by 2009; the Naval version of the Global Hawk called Broad Area Maritime Surveillance (BAMS) and an Army version of the armed Predator called the Gray Eagle.[10]

Money

The desire to field platforms that cost less contributed to the expansion of RPA in Iraq. In three RPA roadmaps released during the war, decision makers effectively maintained the views that former Defense Secretary Cohen and Joint Chief of Staff General Shelton established in Kosovo RPA were considered expendable, and as a result were purchased with knowledge that attrition could be high.[11] The decision makers' perspective is not surprising because they had been focused on saving money overall through the development and application of inexpensive RPA, versus more costly manned aircraft. If an RPA could achieve mission objectives at a cheaper cost, it would make sense to purchase more.

What is somewhat unexpected is the significant increase in budgetary support requested by the DOD and the President that was approved by Congress for more capable RPA despite additional increases in production line expenses and capability enhancements. Three RPA roadmaps confirm that more money was requested and appropriated not only for expendable but also for more costly tactical, theater, and combat-capable RPA. The largest allocation was provided for Predator, Reaper, Global

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[10] Tamar A. Mehuron, "That Giant Droning Sound," *Air Force Magazine* online, July 2007, in http://www.airforcemag.com/MagazineArchive/Pages/2007/July%202007/0707drone.aspx or http://www.airforcemag.com/MagazineArchive/Magazine%20Documents/2007/March%202007/0307chart. pdf. Mehuron provides a list of 16 different types of RPA as of 2006 used between each service component and Special Forces as well as other government organizations like the CIA. The overall types and inventories vary depending on the source, but each increased during the Iraq War.
[11] Office of the Secretary of Defense, *Unmanned Aerial Vehicle Roadmap 2002-2027*, *Unmanned Aerial Systems Roadmap 2005-2030*, and *Unmanned Aerial Systems Roadmap 2007-2032*, search title, http://www.defense.gov. The roadmaps were developed in an effort to improve RPA procurement, fielding, and operations. The most recent roadmap was produced in 2013 and includes unmanned ground and sea systems.

Hawk, and future-combat RPA. [12] Throughout all of the nineties, including Bosnia and Kosovo operations, RPA funding for development, procurement and operations approached $3 billion allocated over a period of ten years. In contrast, between 2000 and 2002 the number had increased to almost $1 billion allocated over two years. After the war in Iraq started, the RPA budget increased to over $1 billion per year excluding supplemental emergency funding for the war, which also increased funding for systems that were increasing in cost. [13]

The budget was approved for the entire RPA inventory, which paid for all systems being employed in pursuit of GWOT objectives. Nevertheless, the 2002 roadmap shows that expensive RPA such as the Global Hawk cost more than the Joint Strike Fighter in some cost comparisons and was as expensive as the U-2 in others. RPA were approaching the prices of manned aircraft in some areas. In one assessment the DoD showed that the Joint Strike Fighter weapons payloads averaged approximately $7,300 per pound of payload while the Global Hawk sensor payloads were approximately $8,000. [14] The nation continued Global Hawk development in spite of its higher payload costs, possibly because they valued the sensor capabilities more than the strike capabilities or because the difference of $700 was a small price to pay for the possibility of replacing aging, yet similarly capable manned systems such as the U-2. However, in another cost estimate, an Air Force report showed that RPA communication link expenses required for flying the platforms grew dramatically as the inventory and operational flight hours increased. [15] By 2009 the expense to operate the entire CENTCOM RPA inventory, which was primarily located in Iraq, resulted in an annual commercial lease of $27.5 million based on the close air patrol requirements levied by decision makers. [16] Repeated decisions to choose RPA platforms over manned platforms despite rising expenses suggest decision makers either believed RPA would save the nation money over time or that they valued the reduced risk to life.

Multiple government reports indicate that national leaders believed RPA would in the long run save America money in a number of different ways. The cost data in the

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[12] OSD, *UAV Roadmap 2002-2027*, 20; *UAS Roadmap 2005-2030*, 38; and *UAS Roadmap 2007-2032*, 10.
[13] OSD, *UAV Roadmap 2002-2027*, 20; *UAS Roadmap 2005-2030*, 38; and *UAS Roadmap 2007-2032*, 10.
[14] OSD, *UAV Roadmap 2002-2027*, 34, 38-39.
[15] USAF, *United States Air Force Unmanned Aircraft Systems Flight Plan 2009-2047*, 43-44.
[16] USAF, *USAF UAS Flight Plan 2009-2047*, 43-44.

2002 UAS report was ultimately determined to be inconclusive, but it made four predictions that contributed to RPA expansion in varying degrees. First, RPA automatic takeoff and landing features on platforms such as the Global Hawk and Shadow alleviated the costs of teaching crews how to takeoff and land, while at the same time minimized the chance of human error during critical phases of flight. Second, RPA reduced the number of training and proficiency sorties by using ground control stations (GCS) as simulators. Third, the operational GCS that doubled as simulators eliminated development and maintenance expenses associated with manned aircraft simulators, while also increasing aircrew familiarity and proficiency with the actual hardware and software in the GCS. Fourth, the dual-use simulator reduced the amount of hours and maintenance required for RPA training allowing associated money and aircraft to be used for operational missions and support.[17] Each prediction about the costs savings demonstrates the rational expected utility of RPA to decision makers, yet there is also compelling evidence that politics impacted RPA growth in Iraq.

Politics

Politics also played a role in RPA development and expansion during the Iraq War. Suffering significant losses during counterinsurgency operations, primarily due to improvised explosive devices and suicide bombers, the Army decided to pursue more organic RPA and create a new Task Force called ODIN (Observe, Detect, Identify, and Neutralize). ODIN consisted of a combination of both RPA and manned platforms with strike and ISR capability. ODIN gained the attention of operational commanders and key civilian leaders such as Secretary of Defense Robert Gates because it became "a critical asset not only in spotting individuals planting IEDs but in allowing analysts to track people and vehicles and thus to identify the networks producing and planting bombs."[18] RPA assets were linked to preventing large numbers of friendly casualties, significantly increasing their demand by battlefield forces. The fact that the Army wanted to increase their combat capability to counter new threats is logical, but the circumstances surrounding ODIN's creation were political in multiple respects.

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[17] OSD, *UAV Roadmap 2002-2027*, 60.
[18] Robert M. Gates, *Duty: Memoirs of a Secretary at War* (New York: Alfred A. Knopf, 2024), 128.

According to Secretary Gates, ODIN resulted from a "turf" war between several organizations especially the Army and Air Force.[19] From the start of the Iraq conflict, the Army and Air Force had been engaged in a battle over who should control RPA programs and operations.[20] The battles led to RPA expansion but they also likely decreased RPA monetary savings and efficiency of development and application. The Army expected to maintain control of their own organic assets in addition to receiving more support from the Air Force, while the Air Force sought full executive authority over RPA platforms capable of flying at medium and high altitudes. Two consecutive Air Force Chiefs' of Staff, General John Jumper and General Michael Moseley, both of whom had experience with RPA in Kosovo, made separate appeals to military and Congressional leaders for sole control of RPA designed to operate above 3,500 feet. Both Air Force leaders argued that a definite controlling authority could provide three major benefits to the nation. First, it could potentially save the nation over a billion dollars by decreasing overlapping developmental programs and contractor support. Second, it would result in more efficient operations since all RPA assets would be centrally controlled and allocated according to the joint force commander's requirements. Third, it would help to mitigate major airspace issues like mid-air collisions that were rising as a result of growing RPA inventories across the services and other government organizations.[21] The Joint Chiefs overruled General Jumper's initiative, but they supported General Moseley's plan and submitted it to Congress. Ultimately, multiple decision makers from the Army, Air Force, Special Operations Command, Navy, and Marines provided their inputs to Congress and other key political leaders. Two combatant commanders were major advocates of the Air Force's plan to oversee RPA expansion demonstrating the political rift between multiple new stakeholders. Admiral Timothy Keating, Commander of Pacific Command, supported the initiative, as did Marine Corps General James Cartwright, Commander of Strategic Command.[22] The Air Force lost its battle for executive agency. RPA inventories continued to be debated among the services and civil

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[19] Gates, *Duty: Memoirs of a Secretary at War*, 128-130.
[20] Rebecca Grant, "The Drone War," *Air Force Magazine* online, July 2007, http://www.airforcemag.com/MagazineArchive/Documents/2007/July%202007/0707drone.pdf.
[21] Grant, "The Drone War," *Air Force Magazine* online, July 2007, http://www.airforcemag.com/MagazineArchive/Documents/2007/July%202007/0707drone.pdf.
[22] Grant, "The Drone War," *Air Force Magazine* online, July 2007, http://www.airforcemag.com/MagazineArchive/Documents/2007/July%202007/0707drone.pdf, 39.

leaders but increased rapidly due at least in part to the political battles. Unfortunately, the service component fighting may have served less to produce more capable RPA systems than it did to increase their political worth among military commanders and perceptions of influence with the civilian leaders such as Secretary Gates.

Secretary Gates was a major advocate of RPA and providing more ISR assets to ground commanders in Iraq. Gates had been a fan of RPA since his days as CIA director when Predator was a prototype participating in the Bosnian conflict. Even then, he valued Predator's persistent video and signals intelligence capability.[23] Perhaps shaped by his prior CIA experience, Gates was not in favor of the Air Force or any other military component having sole control over RPA development or its application. In presentations at the Air Force Academy and West Point, Gates encouraged the service's future leaders to look for innovative solutions to solving combat problems such as ISR shortcomings and providing warfighters new ways to counter the enemy. Ultimately, Gates agreed with the Army that the Air Force was not providing enough RPA resources to ground forces in Iraq.[24] The Army gained Gates support and won multiple political battles related to RPA. The Air Force was never given executive authority over RPA, Gray Eagle was fielded, and Army RPA programs increased significantly during Secretary Gates' tenure. In an effort to equip warfighters more effectively, Gates may have inadvertently accelerated the political turf battles related to RPA that he fought to eliminate. Gates played a key role in RPA proliferation, but he was only one of multiple decision makers who influenced the political process.

President Bush and Secretary Rumsfeld had already set the political stage for RPA advancement and growth in Iraq. As noted previously, both leaders advocated a major overhaul of the military structure and weapons to support an evolving national security strategy focused on defeating global terrorism and other emerging threats. The 9/11 attacks reinforced a number of perceptions about defense shortcomings that related directly and indirectly to RPA. The attacks exhibited intelligence failures among other issues to national leaders, which reinforced the idea that the military, its weapons resources, and the way it fought wars, were in need of a major transformation. This idea

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[23] Gates, *Duty: Memoirs of a Secretary at War*, 128-130.
[23] Gates, *Duty: Memoirs of a Secretary at War*, 128.
[24] Gates, *Duty: Memoirs of a Secretary at War*, 128-130.

was already being contemplated by both leaders and other key decision makers prior to the 9/11 attacks, but was intensified by the events that President Bush defined as "The Pearl Harbor of the 21st century," and a day that "changed my thinking a lot about my responsibility as a president."[25] 9/11 generated a number of new and innovative ideas about RPA and also helped trigger an increased budget for the systems and support personnel, but it did not guarantee the rise. RPA and its supporting personnel structure of aircrew, civil and military technicians, intelligence professionals, and operational commanders were still required to advance the systems and achieve success. Each organizational element had to produce noteworthy effects for the nation in order to convince decision makers to increase the inventory.

Each transformational concept birthed by the events of 9/11 and key national leaders was refined in an effort to defend the nation first, but also to save money and lives by manufacturing more flexible and capable systems. Both RPA technology and force structure were being adapted primarily based on the requests and perceptions of national leadership and combatant commanders. As a result, certain RPA capabilities such as the AGM-114 Hellfire missiles integrated on the Predator in September 2001, were rapidly fielded just days prior to the 9/11 attacks. The newly renovated armed Predator RPA was rushed into operation and immediately began to prove its political worth to the Presidential Administration and each of the service components, especially Special Operations Command.[26] Predator RPA gave the president, his NSC, and military commanders an innovative weapon system at relatively little financial cost, which presented no risk to US forces, but essentially portended fewer civilian casualties than many manned platforms or Tomahawk cruise missiles. Predator was politically more palatable than other similar manned or previous unmanned options. Additionally, Predator had successfully engaged fixed and moving targets in Yemen and Afghanistan, which led to an increased role in Iraq where it was already flying missions in support of Operation Southern Watch (OSW).

Similarly to Kosovo, RPA did not provide significant political benefits to the US as far as gaining access in the region. RPA had already been operating out of Kuwait in

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[25] Woodward, *Plan of Attack*, 24-27.
[26] Mark Mazetti, *The Way of the Knife: The CIA, A Secret Army, and A War at the Ends of the Earth* (New York: The Penguin Press, 2013), 19-21.

support of OSW. Their video and information data was being disseminated to the CAOC in Saudi Arabia and other stateside locations prior to the start of the war. Permission to operate in key allied nations was also achieved prior to major combat operations. Any RPA basing concerns expressed by leaders such as General Tommy Franks were resolved when ground forces established control of major bases in Iraq during the first month of operations. Well prior to the start of surge operations, RPA such as Predator and Reaper were launched and recovered from GCSs located in places such as Balad Air Base, Iraq. Although basing may not have been a major political motivator in Iraq, the fact that RPA were employed from the same airfields as manned platforms demonstrates their increasing capability, compared to operations in Kosovo.

The greatest political motivator for increasing RPA was the perception that it could help America win the war with the fewest number of people in harm's way. Initially, President Bush demanded a smaller, lethal ground force. As conditions on the ground changed, Bush felt compelled to change perspective and increase the number of fielded forces. Bush recounts in his memoir *Decision Points* that the decision to surge troops in Iraq was politically unpopular.[27] He challenged Republicans who argued maintaining or increasing troop levels in Iraq heading into mid-term elections in 2006 would cost their party the election. Two newly appointed leaders gave Bush increased confidence that the surge would be successful and that RPA could help mitigate losing large numbers of troops at the same time. Secretary Gates, whose role has been noted previously, and General David Petraeus, Commander of the Multi-National Force in Iraq from June 2004 to September 2008, which included the surge. Both leaders played a role in RPA expansion in Iraq. Ultimately, Bush and Gates recount in their personal memoirs Petraeus' influence on the overall strategy, material resources, and personnel involved in the surge. Bush called Petraeus the "most persuasive advocate for the surge" and "the undisputed authority on the strategy he would lead" because he had written the Army's counterinsurgency manual.[28] Gates recounted that "nearly every one of my weekly videoconferences with Dave Petraeus, first in Iraq and later in Afghanistan, he would

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[27] George W. Bush, *Decision Points* (New York: Crown Publishers, 2010), 355.
[28] Bush, *Decision Points*, 379.

raise the need for more ISR."[29] In effect, if Petraeus were to accomplish what some people believed would be an almost impossible endeavor to stabilize Iraq and establish a democratic foundation for the country while saving soldiers lives, as President Bush desired, he would receive whatever assets he requested. It is clear Bush thought very highly of Petraeus and valued his perspective since he appointed him as the CENTCOM commander following the successful surge and noted in his memoir: "Roosevelt had Eisenhower and Bradley. I found David Petraeus and Ray Odierno."[30] Petraeus' requests for more ISR assets could have been influenced by past experiences with RPA in Kosovo. The fundamental consideration for key decision makers such as the president was RPA allowed him to place fewer boots on the ground, than he would have had without them, while also meeting the demands of operational commanders who increasingly requested and valued the capability.

Capability

Multiple authors have captured the increasing capability of RPA during the earliest phases of operations in Iraq.[31] The successes of early RPA missions were instrumental in this expansion. Each demonstrates how far RPA had evolved in the short time since Kosovo. Anthony Cordesman focuses on the success of Predator and Global Hawk. Writing in 2003, prior to counterinsurgency operations, Cordesman notes that Predator supported "virtually every major mission in the war, providing imagery day and night of a quality that under optimal conditions allows the user to distinguish between military civilian personnel at distances up to three miles."[32] Cordesman maintains that even when Predator flew unarmed missions, it served as "an effective means of improving targeting and strike reaction."[33] For example, Predator worked effectively and efficiently with RC-135 Rivet Joint electronic warfare aircrews to locate and target Iraqi surface-to-air missiles (SAMs). Suppression or destruction of enemy SAM was a mission that had been traditionally flown by manned aircraft during Kosovo due to the

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[29] Gates, *Duty: Memoirs of a Secretary at War*, 128.
[30] Bush, *Decision Points*, 389.
[31] Anthony H. Cordesman, *The Iraq War: Strategy, Tactic, and Military Lessons* (WA, DC: The CSIS Press, 2003), 307, Stephen Budiansky, *Air Power: The Men, Machines, and Ideas that Revolutionized War, From Kitty Hawk to Iraq* (New York: Penguin Books, 2004) 439, and Walter J. Boyne, *Operation Iraqi Freedom* (New York: A Tom Doherty Associates Book, 2003), 71.
[32] Cordesman, *The Iraq War*, 308.
[33] Cordesman, *The Iraq War*, 308.

limited capability of RPA. In Kosovo, Predator struggled to conduct the missions primarily due to technical and tactical limitations, but also because of inexperienced aircrew, multiple controlling agencies, planners, and commanders. In Iraq, Predator RPA were significantly more successful due to advancements in each area. Rivet Joint would locate the general area of the SAM and would work with Predator and the Air Operations Center (AOC) to refine target coordinates. Although, the Predator was unable to generate its own precise coordinates, its video and target information was almost seamlessly passed to the AOC, Rivet Joint, or other manned assets to effect target strikes when required. Additionally, the Predator's new laser designator was used to "buddy lase" targets, enabling manned assets to locate and attack ground targets.

Delivering increased capability to the warfighter was a prevailing goal of decision makers throughout the war. Each RPA roadmap spoke of the advantages offered by the systems to military commanders more than it did financially. For instance, the 2007 roadmap concludes with a statement that conveys civilian and military leaders, focus on developing and employing RPA in order to help warfighters using enhanced and more efficient weapon systems: "In the above three roles [dull, dirty, and the dangerous], the attributes that make the use of unmanned systems preferable to manned platforms include the following: For the dull, allows the ability to give operators normal mission cycles and crew rest. For the dirty, increases the probability of a successful mission and minimizes human exposure. For the dangerous, lowers the political and human cost if the mission is lost."[34] The 2006 Quadrennial Defense Review (QDR) promoted the same ideas contending, "Recent operational experiences in Afghanistan and Iraq have demonstrated the value of net-centric operations. Ground forces were able to reach back to remote UAV pilots in Nevada to direct UAVs in support of their operations, achieving a level of air-ground integration that was difficult to imagine just a decade ago. Such connectivity is helping joint forces gain greater situational awareness to attack the enemy."[35] RPA may have been more cost effective than other similar systems in the long run, but national leaders were primarily focused on advancing RPA capabilities that were being demanded by operational commanders.

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[34] OSD, *UAS Roadmap 2007-2032*, 19.
[35] DOD, *Quadrennial Defense Review Report*, 6 February 2006, http://www.defense.gov/qdr/report/report20060203.pdf, 58.

Global Hawk was an RPA that was demanded by many commanders due to its advancing capability despite its high monetary costs. It was cable of flying over thirty-hours of deep-reconnaissance missions over Iraq even as a prototype, which helped to increase ISR coverage of entire nation. Despite previous technical concerns about flying prototypes like the Predator during Kosovo operations, Global Hawk was rushed into early combat support operations. Policymakers and commanders were willing to accept the increased risk due to the new national security threat and an increasing need for battlespace information. Key decision makers from the president, to the Secretary of Defense, to the Air Force Chief of Staff, believed the growing capabilities of systems like the Global Hawk would provide the nation with the best weapons to fight current enemies.[36]

In Iraq the threat of losing an RPA to enemy fire or operator error was significantly lower than in Kosovo, for at least six reasons.[37] First, the SAM threat was eliminated early during major combat operations. Second, RPA aircrew, operators, planners, and controllers, were more experienced and better trained than they had been Kosovo. Third, some RPA such as the Shadow and Grey Eagle developed automatic takeoff and landing capabilities.[38] Fourth, ground control stations were updated to include periodic automated updates of the weather to aircrew and mission control personnel. Fifth, aircraft radios were significantly improved allowing aircrew to communicate with Air Traffic Control (ATC) and with other manned and unmanned assets. Finally, the deficient friend-or-foe transponder identified in some RPA systems in Kosovo was resolved, which helped air-operations-center personnel and airborne controllers better facilitate in-flight coordination of battlespace participants.

Also as a result of technical and tactical advancements, medium and high altitude RPA were able to fly practically anywhere the mission required. Despite operational commanders initially establishing altitude ROE on manned aircraft similar to those established in Kosovo such as flying above 15,000 feet, more capable RPA like Predator, Reaper, and Global Hawk would also fly at similar altitudes as manned assets. ATC and manned aircraft with IFF interrogators were able to track RPA via traditional systems,

[36] OSD, *UAV Roadmap 2002-2027*, iii.
[37] OSD, *UAV Roadmap 2002-2027, UAS Roadmap 2007*.
[38] OSD, *UAS Roadmap 2005-2030*, H-7.

rather than procedural control, thus providing greater airspace availability and flexibility. ATC and manned aircraft were also able to locate and maintain situational awareness of RPA positions after they were added to manned, data-linked systems such as the Link-16. This is not to suggest that there were no manned and RPA accidents, but that technology, pilots, and support personnel had adapted since Kosovo to a point at which situational awareness on the location of RPA was significantly increased. At the same time, due to the absence of enemy integrated air-defense capabilities, RPA would also fly freely below the early ROE-restricted altitudes. Neither manned nor RPA assets faced formidable ground air defenses after the first month of the war.

Similarly to Kosovo, several manned assets were lost early in the Iraq War, which may have accelerated RPA expansion. Dozens of manned aircraft and RPA were shot down, lost, or damaged early in the Iraq War. Tim Ripley documented over a dozen different types of aircraft, mainly helicopters, damaged or destroyed due to enemy fire, accidents, mechanical failures, and weather between February and June 2003.[39] The numbers decreased dramatically thereafter. But the early losses of pilots, other aircrew, and expensive manned aircraft probably influenced decision makers. For example, some of the strike aircraft such as F-16, F-15E, and A-10s were lost during missions flown during fierce sandstorms. At the same time, the Global Hawk was able to takeoff outside of the poor weather, fly above it, gather vital intelligence, and recover safely to the United Arab Emirates, while being controlled from Beale Air Force Base in California.[40] In one instance, Global Hawk was able to use its synthetic aperture radar to gather intelligence on Iraqi forces that remained stationary in revetments during the sandstorm.[41] The Global Hawk success story may have led some national leaders to reconsider the risk of flying strike missions with manned assets during very poor weather when a new national asset could provide real-time information as to their fixed and non-threatening position. The Global Hawk mission may have also increased operational commanders, appreciation for the system during severe weather, which was not possible for RPA during Kosovo.

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[39] Tim Ripley, *Air War Iraq* (Great Britain: Pen & Sword Aviation, 2004), 135-139.
[40] Cordesman, *The Iraq War*, 309.
[41] Cordesman, *The Iraq War*, 309.

RPA that were damaged or destroyed during the same time period highlight some additional capability, political, and monetary elements related to RPA growth.[42] For one, the some systems were flown during harsh weather because they were expendable. Also, in at least one instance a Predator pilot was able to recover the aircraft despite enemy fire.[43] The recovery likely indicated to leaders that aircrew proficiency was increasing and/or the aircraft and supporting systems were more robust, or simply that Iraq's ground forces were less capable than Serbian ground forces. The collective loss of RPA was a very small price to pay compared to the much larger value of the dozens of aircrew lost in early crashes. Additionally, the increasing RPA capabilities were demonstrated to the highest and most influential Air Force leaders such as General Moseley and General Jumper who made the following statements early in the Iraq War to the press and Congress respectively: "I love UAVs"[44] and "We're going to tell General Atomics to build every Predator they can possibly build."[45] Money and politics may have been reasons to make such declarations, but increased capability is the more appositive cause for commanders responsible for national security and defense and less concerned about reelection or domestic politics.

Additionally, shortly after President Bush declared major combat operations complete, operational commanders were confronted with increased sectarian and civil violence from a variety of hostile Iraqi and external foreign groups. The new threat and follow-on national objectives of stabilization and reconstruction suited an increasingly efficient, multi-role RPA asset. The hostile factions sought to conceal themselves from US forces, effectively blending in with resident communities using a variety of tactics. Hussein's forces traded in military uniforms for civilian clothing, making them almost impossible to distinguish from the local populace. Moreover, the combatant groups undertook other irregular tactics such as creating and employing make shift but exceptionally effective improvised explosive devices to engage military forces. America had rapidly begun to spend billions of dollars to eliminate insurgents who were using cheap dirty bombs rigged to cars, bridges, and people, which prompted a change in the

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[42] Ripley, *Air War Iraq*, 135-139.
[43] Ripley, *Air War Iraq*, 136.
[44] Budiansky, *Air Power,* 439.
[45] Peter Pae, "Air Force Wants Big Boost in Predator Fleet," *Los Angeles Times*, 19 March 2005, http://articles.latimes.com/2005/mar/19/business/fi-predator19.

tactics and weapons employed in combat. The sensor and shooter capabilities of RPA became the new weapon of choice for some organizations, particularly the Army, which had limited experience using ISR-only RPA to reduce civil violence in Kosovo during peacekeeping operations after OAF.

Locating and identifying hostile or friendly groups was extremely challenging for ground forces. Although coalition ground forces were able to maneuver door-to-door in pursuit of insurgents in a relatively timely manner, the fog and friction of maintaining positive identification on a foe was difficult. Military commanders recognized early on during counterinsurgency missions in places like Fallujah and Bagdad that RPA increased their situational awareness and provided increased capability to identify, engage, and assess targets.[46] When the threat changed from fighting fielded forces to countering insurgents, the demand for RPA increased. Shimko points out that RPA effectively served as armed escorts "scanning wide areas in search of insurgents laying in wait to ambush."[47] RPA emerged as one of the most readily available weapons systems in the military inventory to help counter insurgents, by providing persistent intelligence on HVTs, and also to see over or around the next obstacle in front of ground forces. The elevated status and capabilities of RPA fueled inventory expansion.[48]

Some upgrades to RPA have been mentioned, but others made a major difference in the decision to rapidly field and expand the inventory. From the start of the war, Predators could employ up to two Hellfire missiles. Reapers began flying operational missions in late 2007 during the surge and were capable of employing a variety of weapons including 500-pound GBU-12 laser guided bombs and Hellfire missiles. The Army's Gray Eagle also became operational in 2008. It is capable of carrying up to four Hellfire missiles. Multiple warfighters, including operational commanders, Special

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[46] Rebecca Grant, *The Fallujah Model*, Air Force Magazine 5 February 2005, http://www.airforcemag.com/MagazineArchive/Documents/2005/February%202005/0205fallujah.pdf, 50-51.

[47] Keith Shimko, *The Iraq Wars*, 210.

[48] Dan Caldwell, "Military Strategy in Afghanistan and Iraq," in *US Policy in Afghanistan and Iraq: Lessons and Legacies*, ed. Seymon Brown and Robert Scales (Boulder: Lynne Rienner Publishers, 2012), 67-69. Caldwell and multiple other authors provide context for the overall operations in Iraq and Afghanistan and cursory information on the role of RPA. Each described a situation where national leadership wrestled with intelligence about they enemy, specifically determining friend or foe. RPA had advanced rapidly since Kosovo and were capable of providing tactical, operational, and strategic intelligence aiding national leadership political aims and objectives.

Forces, and the president used RPA to strike targets at various times to achieve national and combat objectives in Iraq. The ongoing debates about the political efficacy of using RPA for strike missions were less prevalent in Iraq than other GWOT areas for several major reasons. Iraq was a recognized by the international community as a warzone. Iraq's new leaders supported or at least never publicly challenged the use of armed RPA. Also, decision makers believed Predator strikes limited collateral damage. An example that captures each idea occurred on one of the first strike missions of the Predator. Just days into the war, the Iraqi's moved a satellite television antenna next to the Grand Mosque in Baghdad. Walter Boyne suggests they did so "believing it would be safe there from air attack."[49] Operational commanders elected to use an armed Predator to target and destroy the antenna, which was both politically and military successful. The Mosque was undamaged, while the antenna was destroyed. Although hellfire missiles had been successfully employed in the past from helicopter, Predator could provide real-time video and data information of the strike to CAOC leaders, ground commanders, and other stateside leadership.

Another related RPA capability helped pass images and video to warfighters during both RPA strike and reconnaissance missions. In Iraq, new RPA communications architecture and technology were advanced, which increased the overall capability of warfighters at all levels of the government. It also may have saved money and lives. Video data and information were rapidly and simultaneously disseminated from a variety of RPA to multiple warfighters. Unlike in Kosovo, multiple customers in the civil and military chain were able to receive information quickly from Predator, Reaper, Global Hawk, and other RPA. One new way to receive that information was via a laptop system called ROVER (Remote Operated Video Enhanced Receiver). ROVER laptops could be installed and operated almost anywhere in the battlespace. The 2005 UAS roadmap notes that ROVER enabled "AC-130 Gunship and dismounted ground units to directly receive Predator motion video."[50] The most important group in the eyes of many leaders was the ground forces, especially the special operations forces attempting to identify and engage the enemy or win the hearts and minds of the local population, as Petraeus' manual and

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[49] Boyne, *Operation Iraqi Freedom*, 71.
[50] OSD, *UAS Roadmap 2005-2030*, B-9.

strategy required. In contrast to Kosovo where manned aircraft struggled to receive, interpret, and utilize RPA information, in Iraq ground forces were able to coordinate strike missions using the persistent overheard view of the battlespace provided by a variety of ROVER-capable RPA. More importantly, ground forces were able to observe, detect, and identify targets prior to neutralizing them, which many leaders perceived saved both American and Iraqi lives.

Conclusion

This chapter demonstrated that capability and politics led to the dramatic expansion of America's RPA inventory in Iraq, while money played a smaller but persuasive role. Some RPA were improved dramatically following Kosovo. Additionally, multiple new RPA were employed throughout the Iraq war. As a result, RPA collectively gained increased financial and political support. In addition to the capabilities of RPA, the new security threat afforded them a greater role in the war. Even then, the global war did not guarantee RPA expansion. RPA aircrews, air traffic controllers, planners, and operational commanders gained vital experience prior to and throughout the war that helped increase performance and success. Due to their political efficacy and combat capability, RPA became a priority among the nation's most influential leaders from the president and multiple Secretaries of Defense to prominent military commanders from each of the services. Although America's leaders eventually recognized the war in Iraq could be lengthy, many believed RPA could help the nation achieve success more quickly, cheaply, and decisively. Ultimately, the prospect of winning a controversial war without losing lives was a major element in RPA growth in Iraq.

Chapter 4

Afghanistan, 2001-2014

Before the war, the Predator had skeptics, because it did not fit the old ways. Now it is clear the military does not have enough unmanned vehicles.
—President George W. Bush

Conventional airpower or missiles are far less precise than drones, and are likely to cause more civilian casualties and more local outrage.
—President Barrack H. Obama

Introduction

Although similar leaders, organizations, and general contextual conditions influenced RPA expansion in Afghanistan as Iraq, the presence of even more stakeholders increased the political bargaining involved in RPA growth. In Afghanistan, operational commanders at all levels of command continuously requested more RPA in spite of rising monetary costs. Additionally, two major political factors affected the decision-making process. The perception that RPA were not only helping save lives but were transforming the way America fought wars combined with the NSC's belief that RPA were one of the most politically expedient weapons to defeat terrorists who had found sanctuaries along the Afghan border and in neighboring Pakistan. Similarly to Iraq, RPA played a significant role in Afghanistan due to advancements in system capability. As the epigraphs suggest, politics and capability influenced a rapid RPA fielding and expansion in Afghanistan, but money cannot be completely ruled out as a factor in the decision-making process because of the improved precision, effectiveness, and efficiency provided by RPA.

Background

Operation Enduring Freedom (OEF) officially began 7 October 2001 when President George W. Bush gave General Tommy Franks, Commander of US Central Command, the order to begin air strikes on Taliban and al-Qaeda targets. After several weeks of the CIA and other government organizations analyzing evidence related to 9/11, the United States confirmed the attacks were conducted by al-Qaeda, the terrorist

organization led by Osama bin Laden.[1] Bin Laden was already on America's most
wanted list because of his confirmed leadership and support in US Embassy bombings in
East Africa and an attack on the USS Cole, among other hostile activities. Using
intelligence gathered at the time, the United States had unsuccessfully and expensively
targeted bin Laden with Tomahawk cruise missiles during the Clinton Administration.
The Taliban regime was harboring bin Laden and members of his organization, who were
training and developing plans to attack America. The CIA suspected they had observed
bin Laden in Afghanistan in 2000 using one of their Predator RPA.[2] Just prior to the start
of OEF, the Air Force also began operating Predators in Afghanistan, but national leaders
had not resolved how to respond if either the CIA or Air Force located bin Laden. [3] OEF
was launched to stop the Taliban from providing a safe haven to al Qaeda and to prevent
terrorist from using Afghanistan as a base of operations for their activities. Prior to 9/11,
national leaders had considered multiple strategies to counter bin Laden with no clear
resolution.[4]

Soon after 9/11, America's leadership started developing a new strategy and
multiple operational plans to defeat the terrorist threats in Afghanistan and other
locations.[5] Proposals employing RPA evolved as the war progressed under President
Bush and President Barrack Obama, as well as other key civilian and military decision
makers. Predator RPA played an important role in the nations preliminary strategy
developed prior to OEF. The CIA was a key contributor as the lead governmental
counterterrorism organization. Predator provided intelligence, surveillance, and
reconnaissance (ISR) to national leaders particularly the National Security Council
(NSC). 9/11 occurred and America's unsettled opinion about striking bin Laden rapidly
gave way to conducting conventional air strikes. Decision makers felt compelled to
respond with proven strike capabilities, rather than RPA, which provided meager payload
options and weapons versatility.

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[1] Seymon Brown and Robert Scales, *US Policy in Afghanistan and Iraq* (Boulder: Lynne Rienner
Publishers, 2012), 59.
[2] Bob Woodward, *Bush at War* (New York: Simon & Schuster, 2002), 77.
[3] Woodward, *Bush at War*, 77. Lambeth, *Air Power Against Terror*, 68. Whittle, *Predator's Big Safari*,
18, 23-24.
[4] Brown and Scales, *US Policy in Afghanistan and Iraq*, 63.
[5] Brown and Scales, *US Policy in Afghanistan and Iraq*, 63.

The conventional air strikes were an element of a new strategy called the "Afghan Model," which was sought Taliban regime change and the defeat of al-Qaeda. Armed Predator, which was re-categorized as the MQ-1 for its multi-mission role, played a small role in the early attack missions. The air strikes served a number of purposes, such as striking Taliban early warning radars, airfields, infrastructure, and al-Qaeda leaders. The Predator was used for the latter missions to target bin Laden and his top lieutenants. Using RPA to strike HVT while minimizing collateral damage, the NSC sought to prevent undue harm to noncombatants in an attempt "to avoid further inflaming anti-American passions throughout the Islamic world," setting the stage for weapons used in Afghanistan and neighboring Pakistan.[6] It also established an early perspective of how, and by whom, Predator would be used to fulfill national objectives. The Predator allowed the CIA, Air Force, and Special Operations Forces (SOF) to pursue national aims based on video and data dissemination, unprecedented aircraft control with reach-back to the United States, and attack upgrades to Predator capabilities.

Precision and preserving political capital were key elements of the Afghan Model, which persisted throughout OEF. When the war began, except armed CIA Predator missions who had bin Laden or other al-Qaeda senior leaders in their cross hairs, even General Franks had to receive permission from Washington for air strikes with medium or high collateral damage estimates.[7] Just as 9/11 President Bush had given CIA Director George Tenet authority to strike and kill bin Laden and his top leaders.[8] Similarly, under the Obama Administration national leaders continued to approve CIA Predator strikes conducted in Afghanistan and Pakistan.[9] The approval process was complicated because the two nations share a porous border area. The Pakistani side of which is called the Federally Administered Tribal Area (FATA), which includes mixed Afghan and Pakistani tribes and societies. Ultimately, civil and military chains of command shared the responsibility for RPA strikes along the Afghan border continuing the distinctive union established by the original Afghan Model. Precise, deliberate, and controlled

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[6] Lambeth, *Air Power Against Terror*, vxi.
[7] Woodward, *Bush at War*, 166.
[8] Woodward, *Bush at War*, 166.
[9] President Obama speech at NDU.

attacks on high-value targets (HVTs) were conducted using armed RPA as a principal instrument.

The Afghan Model continued America's pursuit to save money and lives through the use of precise weapons. The NSC and the president seemed to believe that Predator could help in both areas.[10] Both military and CIA planners had developed the nation's strategy to support and predominantly utilize the Northern Alliance of Afghan rebels to overthrow the Taliban. In some ways, the Afghan Model was a compromise for national leaders who ruled out both a plan of no "boots on the ground" used in the Balkans and the large numbers of troops used in the Persian Gulf in 1990-1991. Air and ground assets were combined in efficient ways to reduce blood and treasure spent in Afghanistan. After almost two weeks of airstrikes and some weather delays, just over four hundred joint Special Operations Forces (SOF), Air Force terminal attack controllers, and CIA paramilitary personnel teamed up with the Northern Alliance, introducing the first coalition forces on the battlefield.[11] The team was small, operations were cheaper than the usual large-force deployment, but the collective force was agile and lethal. The main objective of the force was to defeat al-Qaeda and Taliban ground forces using airpower as the principal US instrument by synchronizing precise targeting information between air and ground forces. In just over sixty days the joint military, paramilitary, and militia team was successful. The Taliban were removed from power, but bin Laden and many of his senior leaders escaped to neighboring Pakistan. Civil unrest ensued, which turned into fluctuating levels of insurgency and sectarian violence that persisted into 2014.

Ultimately, the war in Afghanistan was dramatically different than Kosovo and Iraq. One major difference was America's decision to use a small fielded force, followed by subsequent surges, which affected the RPA decision-making calculus. In the end, the United States committed close to a trillion dollars and thousand of lives to the war. Both Presidents elected to surge troop levels three different times exceeding over 100,000 in 2009. President Obama began drawing those numbers down in 2011.[12] As of 1 April

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[10] Woodward, *Bush at War*, 223.

[11] Brown and Scales, *US Policy in Afghanistan and Iraq*, 60.

[12] Mark Duell, "We've turned a corner," *Dailymail* online, 23 June 2011, http://www.dailymail.co.uk/news/article-2007099/Obamas-plan-withdraw-30k-troops-Afghanistan-risky.html

2014 there were 33,500 U.S. troops in Afghanistan.[13] With a ground force of four

hundred plus, initial Afghanistan war costs were low, approximately $20 billion by the

end of 2002 compared to the $122 billion spent in 2011 and over 100,000 troops

committed (the highest war cost year) and $90 billion in 2013 with the war drawing to a

close.[14] During the war President Bush, President Obama, and Congress steadily

increased RPA financial support. Ultimately, RPA increased steadily from just over a

dozen Predators to almost 400 RPA including Predator, Reaper, and Global Hawk in

2014. The greatest increase in Afghanistan occurred in 2009, although there has been

little deceleration in RPA proliferation in Afghanistan since that time.[15] Similarly to the

previous case studies, the evidence suggests that politics and capability influenced

decision makers more so than money, while other significant intervening contextual

variables also influenced RPA growth.

Money

Multiple reports suggest the price of RPA influenced expansion in Afghanistan.

From the beginning of the war, a number of government organizations including the

Congressional Budget Office, were tracking the cost of RPA platforms, research,

development, procurement, operations and maintenance (O&M). Initially each variable,

from fielding to application, was combined in cost reports mainly because RPA were so

inexpensive in previous conflicts such as Kosovo. After the first year of the war,

improved data were captured and costs were better delineated in an effort to provide

decision makers with more fidelity about the financial benefits of using RPA.

Nevertheless, senior decision makers, such as the National Security Council (NSC)

members, appear to have to been concerned almost exclusively on the low cost of

Predator aircraft. The evidence suggests that the only cost comparison that mattered to

some leaders was the fact that Predator was cheaper than an F-16 or A-10, when carrying

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[13] NATO, *Troop Numbers and Contributions*, online accessed 16 April 2014, http://www.isaf.nato.int/troop-numbers-and-contributions/index.php

[14] National Priorities Project, "Legislation Appropriating War Funding and Supplemental Resources, 2001-2014", accessed 22 April 2014, http://nationalpriorities.org/cost-of/notes-sources/.

[15] OSD, *UAS Roadmap FY2013-2038*, 5. Woodward, *Bush at War*, 293.

similar payloads.[16] Some members of the NSC failed to consider other relevant expenses that more adequately captured the price of RPA.

Government reports pointed out that RPA required other vital components to conduct combat missions successfully. The data countered ideas developed during Kosovo that RPA were cheaper than manned systems. RPA roadmaps and reports by the Congressional Budget Office noted that Predator and Reaper aircraft being flown from the United States required control-station modifications and new communication-link architecture that were estimated to cost $30 million in FY2002 and $50 million by FY2005 respectively, which surpassed the threshold of an F-16 and an A-10.[17] The reports also indicated that the most advanced RPA, such as the Predator, Reaper, and Global Hawk, could require over a hundred personnel to conduct operational missions, which would increase O&M cost.[18] Because the overall O&M prices of Predator and Reaper were debated, some decision makers may have unintentionally chosen a more expensive weapon system. Nevertheless, civil and military leaders continued to approve more money for research, development, and procurement of even the most costly RPA, such as Global Hawk. The evidence indicates that decision makers were motivated by the perceived low price and/or high benefits of particular RPA platforms, but failed at times to consider the true costs of the systems because of their focus on known information, versus other disputed or less understood costs.

The monetary evidence also suggests that O&M prices were relatively cheap compared to the overall O&M costs of the war, which was also a concern of decision makers.[19] In the first year of the war Congress approved approximately $1.4 billion, including research development testing, procurement, O&M for all defense RPA combined.[20] The investment was a major increase, compared to the nineties when

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[16] Woodward, *Bush at War*, 223. Woodward conveys that the NSC perceived the costs of Predator RPA to be between $1 and $4 million per aircraft and considered them expendable.

[17] OSD, *UAV Roadmap 2002-2027, UAS Roadmap 2005-2030*. CBO, *Analysis of the Growth in Funding for Operations in Iraq, Afghanistan, and Elsewhere in the War on Terrorism*, 11 February 2008, http://www.cbo.gov, 2.

[18] The reports did not acknowledge that an F-16 or A-10 could also require similar numbers of maintenance support personnel to fly operational missions.

[19] Bush, *Decision Points*, 439-472. Bush discusses America's economic crises broadly, demonstrating decision maker's perspectives on war spending and its impact to the nation were a concern.

[20] OSD, *UAV Roadmap 2002-2027*, 19-20.

congress had only appropriated a total of $3 billion for RPA across the entire DoD.[21] By 2005 O&M prices were better delineated in budgetary requests, but decision makers had already decided to reallocate most RPA to Iraq based on their perceived capabilities to help counter insurgents and political usefulness. At that time, congress approved $92 million for Predator and Global Hawk combined, less than one percent of the $57 billion approved for the Global War on Terrorism (GWOT) overall O&M.[22] In 2007 the RPA O&M budget included the Reaper. Although the budget increased six-fold in 2007 up to $590 million, the expense was still less than one percent of the entire GWOT operations, which cost America $92 billion.[23] Based on this data, if money were the leading concern of the president, the NSC, or Congress they could have interpreted RPA as being an extremely low-cost weapons in an expensive global war. If that were the case, then decision makers should have elected to increase the number RPA at the start of the war, which did not occur. The above information indicates that something more than merely money was influencing decision makers views and interests in RPA expansion in Afghanistan.

Politics

Politics was also a factor in the rise of RPA in Afghanistan. The nation was engaged in a global war on terrorism from the start of the conflict. Consequently, RPA were being employed with multiple political motivations by a variety of organizations in spite of their possible higher costs. Decision makers were willing to sacrifice money for RPA they felt could provide a higher degree of certainty about the enemy and the battlespace. In many ways, RPA could help provide intelligence about the enemy, but also demonstrated the continual battle of assessing enemy intentions, which remained a challenge for national leaders. The modest rise of RPA prior to 2009 may have been due to a perception of political gains, losses, and risk. For political reasons decision makers had committed less human and physical resources to Afghanistan than Iraq until 2009. As a result, national leaders were less concerned about RPA expansions in the country. In this respect, decision makers believed they had more to lose politically by not

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[21] OSD, *UAV Roadmap 2002-2027*, 19.

[22] CBO, *Analysis of the Growth in Funding for Operations in Iraq, Afghanistan, and Elsewhere in the War on Terrorism*, 11 February 2008, http://www.cbo.gov, 2.

[23] CBO, *Analysis of the Growth in Funding for Operations in Iraq, Afghanistan, and Elsewhere in the War on Terrorism*, 11 February 2008, http://www.cbo.gov, 2.

increasing RPA in Iraq than in Afghanistan, until the decision was made to surge troops and political priorities were altered.

Additionally, decision makers had consistently assessed and publicized the threat in Iraq to be greater than Afghanistan until the summer of 2008. At that time, the insurgency in Iraq had been sufficiently countered in the eyes of most national leaders. In *Decision Points* President Bush provides his perspective on the ground surge: "By the time the surge ended in the summer of 2008, violence in Iraq had dropped to the lowest level since the first year of the war. The sectarian killing that had almost ripped the country apart in 2006 was down more than 95 percent…Al Qaeda in Iraq had been severely weakened and marginalized. American deaths, which routinely hit one hundred a month in the worst stretch of the war, never again topped twenty-five, and dropped to single digits by the end of my presidency. Nevertheless, every death was a painful reminded of the costs of war."[24] In Bush's mind and those of other decision makers, the surge was perceived as a success partly because of the support of RPA, as noted in the previous case study. National leaders publicized that RPA had helped counter insurgents and al-Qaeda in Iraq. More importantly, they believed RPA had helped save American lives by providing persistent ISR and by taking al-Qaeda and insurgents off the battlefield.

After the successful surge in Iraq, Afghanistan became the political priority of national leaders. President Obama sustained Bush's strategy and categorized the Afghan insurgents and al-Qaeda in neighboring Pakistan as a significant threat to national security. Decision makers ideas about RPA and their efficacy to combat threats in Afghanistan and Pakistan had changed along the way due to political reasons. Mark Mazetti notes in *The Way of the Knife* that by the time President Obama had taken office "the political conditions were set for an escalation of the secret wars."[25] During President Obama's election campaign, he condemned the Bush Administration's secret detentions and questionable interrogation techniques. He also announced a plan to close the prison at Guantanamo Bay. At the same time, there were political and rational security concerns

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[24] Bush, *Decision Points*, 389.
[25] Mazetti, *The Way of the Knife*, 219.

among the Obama Administration about the prisoners returning to foreign governments.[26] Some worried that the Administration would appear weak or lenient against security threats, while others were concerned about a perception that the new administration may solicit foreign governments as proxies to torture or kill enemies. In the epigraph, the president provided his perspective when he noted the political persuasion and pull of RPA that helped minimize local outrage in areas such as Pakistan. Prior to the change in strategy, the political threat of not increasing RPA was lower in Afghanistan and Pakistan than elsewhere, resulting in less rapid RPA fielding and growth. When the reverse occurred, decision makers were compelled to pursue more systems that could help protect or even increase their political power. Some national leaders and citizens came to the conclusion that RPA had become "America's primary tool to conduct lethal operations" or the new "weapon of choice" as the highest levels of the government decided to shift America's forces, RPA, and objectives to Afghanistan.[27]

Decision makers were naturally concerned about domestic opinion of the war following their decision to re-prioritize military resources and political concentration to Afghanistan. Early in the conflict, national leaders made a choice not to commit large numbers of ground forces to Afghanistan. Fielded forces numbers in Afghanistan did not surpass those in Iraq until 2009. RPA were increased at the same time. RPA were probably increased because decision makers were measuring the civil and military costs of not increasing RPA after maintaining a policy for years of few ground forces. While President Bush and his NSC deemed Iraq the political priority for the majority of his presidency, the Obama Administration entered office at a critical change in troop levels and overall reallocation of military resources for the Afghan conflict. Maintaining lower numbers of RPA in 2009 would have meant assuming a major political risk for civilian and military leaders at all levels of the government including the new president. President Bush, Secretary Gates, General Petraeus, the CIA, and operational commanders had promoted RPA, which helped to ensure their expansion under the new administration.

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[26] Mazetti, *The Way of the Knife*, 218-219.
[27] Mazetti, *The Way of the Knife*, 389.

Even after 2009, national leaders elected to increase the number of ground troops and RPA in Afghanistan. The prevailing rhetoric and perception at the highest levels of the government was that RPA successfully targeted and killed HVTs and were a fundamental imperative to support ground commanders objectives and save American forces lives. Secretary Gates noted in his memoir that decision makers believed RPA were "man hunters" and "provided our troops with intelligence that supported combat operations but that also protected their bases and outposts, especially in Afghanistan."[28] Although, he also recounts that he had a hard time persuading Air Force leaders that RPA "were an integral part of the Air Force's future and should become a significant and enduring part of its combat capability."[29] Gates' words illustrate some of the political and organizational battles that took place during the decision to expand RPA. Just as President Bush listened to his operational commanders, national leaders, and warfighters who recommended increasing RPA in Iraq, President Obama did the same in Afghanistan. If large numbers of troops had died during the surge in the absence of RPA that could have been provided, President Obama would have lost credibility with DOD leaders such as Gates, who had overseen the surge in Iraq and pushed for more ISR assets, including RPA. Additionally, Obama may have lost standing and respect from operational commanders such as General Petraeus, his appointed CENTCOM commander, who was also recognized as the architect of the successful counterinsurgency in Iraq. Finally, and perhaps more importantly, President Obama may have lost face with warfighters, the same warfighters who respected Gates and Petraeus because they had helped equip and protect them against similar threats in Iraq. Therefore, the President's decision was likely politically motivated to some degree in an effort to help protect the soldiers he committed to the surge, but also to keep his word to the nation that he would "use military force to take out terrorists who pose a direct threat to America" if the Pakistan President would not respond.[30] Ultimately, President Obama's speech to the National Defense University indicates that politics was a factor in

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[28] Gates, *Duty: Memoirs of a Secretary at War*, 133.

[29] Gates, *Duty: Memoirs of a Secretary at War*, 131.

[30] Peter L. Bergen, *Man Hunt: The Ten-Year Search for bin Laden From 9/11 to Abbottabad* (New York: Crown Publishers, 2012), 110.

his RPA decision-making calculus. However, his speech also indicates that decision makers pursued RPA because of their capability.

Capability

By the start of OEF, RPA were providing national leaders with both direct and indirect effects in the battlespace. Different organizations' perception of the increased capabilities influenced the pace of RPA expansion in Afghanistan. Additionally, multiple capability deficiencies had been rectified following Kosovo, as was noted in the Iraq chapter, though some still remained. The proven and most-valued capabilities of Predator and follow-on RPA like Global Hawk and Reaper were often both subjective and objective, based on organizational missions and perspectives. Following Kosovo, some RPA were adapted and developed to include attack capabilities as well as important video and data enhancements that could span all levels of warfare almost instantaneously. Predator and Reaper both advanced to possess a laser designator and strike weapons such as Hellfire missiles and laser-guided bombs, but persistent ISR was the most emphasized and valued capability of most organizations employing RPA early in the war.[31] Even then, decision makers recognized that RPA were still unable to provide sufficient ISR.

Unarmed CIA Predators began operations over Afghanistan in 2000 establishing a new baseline for ISR RPA capability in warfare. The advanced RPA could now be flown from the United States using satellite-link communications. Nevertheless, RPA provided limited time over target to its only customer at the time—the NSC. Predator was incapable of flying twenty-hour close air patrol (CAP) for multiple reasons. The first was clear to President Bush on the first day of the war. The CIA was unable to fly more than one Predator at a time because the organization was not designed or equipped with sufficient personnel and aircraft resources. The Air Force determined shortly after the start of operations that it would require approximately four or five aircraft and hundreds of personnel to fly the mission based on the distances travelled to and from targets in Afghanistan. The deficient numbers of RPA persisted initially partly because of little political backing, but also due to the lack of manning and support personnel in both organizations. The first RPA Combat Air Patrol (CAP) was established in 2002. It covered a small area of operations based on the limited resources. By 2009, the number

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[31] The MQ-9 Reaper began flying operational missions in 2005.

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had grown to almost forty in Iraq and Afghanistan. Time, money, political priority, and increased manpower were required to resolve RPA persistence shortcomings.

Although, the organizations agreed that persistence was important most recognized attack capabilities were also crucial to defend American interests. A number of system upgrades were initiated based on the specific priorities of different organizations. For example, strike capability upgrades were initiated and overseen by the Air Force, which sought better conventional attack and target location payloads as a result of lessons learned in Kosovo. The CIA also saw a need to develop an attack capability, based on two suspected sightings of bin Laden in Afghanistan prior to the start of OEF. At the time the CIA was unsure if using Predators to target and kill enemies of the state was something they desired or was lawful.[32] The primary mission of the CIA was to gather strategic intelligence—a perception that began to change following 9/11. Nevertheless, the CIA supported the efforts to weaponize RPA and helped ensure the legal framework was in place for their employment by both itself and the USAF prior to the start of OEF.[33] Then CIA director, George Tenet, provided his organization's perspective in a written statement to the 9/11 Commission. Tenet reasoned that armed RPA could be used "to accurately and promptly respond to future sightings of high value targets," but that "CIA leadership from the beginning felt it important that there was a full understanding by the President and the National Security Council of the capabilities of the armed Predator and the implications of its use."[34] The potential capability of Predator was valued by the highest levels of the government, but it was untested in combat.

Early Predator strikes were not always successful, which is probably the reason that President Bush was somewhat cautious with his address to the Citadel just after the start of the war. Similarly to Kosovo, where RPA aircrews and various organizations were developing tactics, techniques, and procedures (TTPs), in Afghanistan multiple

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[32] Bob Woodward, *Obama's Wars* (New York: Simon & Schuster, 2010), 24-26. Woodward notes that CIA Director and Air Force General Michael Hayden had reservations about RPA attacks during his time as the director, 2006-2009, and also when he was the NSA director, 1999-2005. But Hayden provided the newly elected President with data that suggests RPA were working to eradicate al Qaeda senior leaders during 2008, where "seven of the top 20 al Qaeda leaders had been killed" in Pakistan. Hayden further assessed that al Qaeda was "struggling to replace those leaders."

[33] Whittle, *Predator's Big Safari*, 22.

[34] George J. Tenet, written statement to the 9/11 Commission, March 24, 2004, accessed 5 May 2014 at http://www.nbcnews.com/id/4592866/ns/us_news-security/t/george-tenet-written-statement/.

organizations were learning to employ weapons from RPA without having any previous experience. The Air Force led the effort, but the CIA and SOF were involved from the beginning in system integration and TTP development. Early missions in Afghanistan and Iraq helped increase RPA attack effectiveness and efficiency. By the time of the major expansion, each of the service components, the CIA, and SOF had significant experience and greater knowledge about how RPA could be used to attack or facilitate attacks for other platforms. RPA tactics and technology were improved. Eventually organizational experience, improvements to TTPs, and RPA advancements increased the combat capability of the diverse civil and military groups that relied on RPA in Afghanistan.

One example of the rapid advancements of RPA and integration across organizations was the development of ROVER. SOF and Air Force personnel teamed up just prior to OEF to determine how to ensure manned aircrew and fielded forces could rapidly receive Predator video information in order to improve targeting. By the time the war started, AC-130 were able to receive Predator video onboard their aircraft via the ROVER system. The new capability enabled AC-130 aircrew to see a target up to a hundred miles before engaging it. ROVER was crucial for targeting enemy combatants who were able to hear the loud engines of the AC-130, visually spot the aircraft, and then hide prior to attacks.[35] The AC-130 aircrew developed TTPs with RPA that allowed the crew to conduct their attacks precisely and efficiently. They used Predator video to establish run-in headings, sort potential targets, and assess possible friendly concerns throughout the attack.[36]

Nevertheless, ROVER was initially unavailable to other air assets and ground forces. A single ROVER system was sent into in Afghanistan in February 2002, but it was too large for ground forces to carry, so they had to attach it to a vehicle.[37] The fact that one system was provided to the SOF community makes sense organizationally. Special operations organizations are designed to be agile, in order to conduct operations for short periods of time. They often enter combat zones with small numbers of weapons systems that may or may not have been proven in combat. They are traditionally

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[35] Whittle, *Predator's Big Safari*, 27-29.
[36] Whittle, *Predator's Big Safari*, 27-29.
[37] Whittle, *Predator's Big Safari*, 27-29.

organized not to rely on technology to sustain operations for long periods of time. However, like any other organization, the SOF community would have preferred to have as many proven and capable ROVER as possible in order to enhance combat capability.

Due to its expected utility not only for SOF, but also for multiple organizations, ROVER upgrades persisted throughout OEF. The result was a second system that was later called ROVER II, which was small enough for soldiers to carry and allowed them to observe Predator video near real time. An unfortunate aspect of not fielding the system earlier was that ground forces participating in early Operations such as Anaconda conducted missions in a high-threat environment with RPA overhead and no practical way to receive their video information. The loss of life during the operation revealed a number of limitations in RPA development and application. Some organizations like the Air Force and SOF community had been proactive and forward thinking in many aspects of the development of ROVER. There were however, multiple breakdowns between organizations in the integration and TTP considerations prior to its fielding. While CENTCOM leaders acknowledged they could see the Predator video, they lamented about the mission at Roberts Ridge, named after Navy SEAL Petty Officer First Class Neil Roberts, that "we saw him on the Predator being dragged off by three al Qaeda men," unbeknownst to the other SOF personnel.[38] CENTCOM was not alone in its concern over the insufficient availability of ROVER, system integration, and TTP development. Each of the services sought to rectify the shortcomings. The collective group of RPA stakeholders pushed to advance and field more ROVER, which resulted in ROVER III developed several years later in Iraq. ROVER III was small enough to be carried in a backpack and provided real-time information to ground forces from multiple RPA, including Predator and Reaper.[39] The evolution of ROVER is just one example of how conventional and special forces combined to improve and pursue RPA capability.

There are numerous examples of RPA being used to enable conventional, SOF, and CIA missions. One of the greatest examples of how far RPA capabilities progressed throughout the course of the war is illustrated in the Abbottabad, Pakistan raid in which

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[38] Lambeth, *Air Power Against Terror*, 187-188.
[39] Whittle, *Predator's Big Safari*, 28-29.

Special Forces killed bin Laden.[40] Multiple sources indicate that national leaders debated three courses of action to conduct the mission including a B-2 bomber strike, an RPA attack, or a SOF raid. Each source relays the some of the key considerations of decision makers, particularly the recognized political sensitivities of using a manned aircraft such as the B-2 to kill the leader of al-Qaeda. Decision makers believed the B-2 would probably destroy DNA evidence and possibly place many civilians in harm's way, due to the scope and effect of aircraft's bombs. In effect, there would be no way to verify bin Laden was killed, while endeavoring to limit collateral damage to zero civilian losses. RPA also could not verify whether bin Laden had been killed even though their Hellfire weapons were considered to be more surgical than the B-2's weapons. Ultimately, the decision was made to use SOF forces because in spite of the physical and political risk, decision makers believed it was critical to verify bin Laden's identity in addition to gathering valuable physical intelligence during the mission.[41] A strike from a manned aircraft or RPA could not provide such certainty and information.

Nevertheless, an RPA could provide decision makers with increased situational awareness of the overall mission. As a result, the NSC and operational commanders elected to use RPA for their proven persistence and ISR capability on the high stakes mission, rather than risk employing a weapon that might fail to kill bin Laden, but generate significant international outrage by killing civilians. RPA were employed rationally to enable the decision making process throughout the raid, having been advanced technically to a point where they "could penetrate deep into Pakistan itself, operating over extremely sensitive areas without being noticed by radar."[42] RPA capability advanced dramatically since the days of the F-117 shoot-down in Kosovo. Decision makers used the new technology to neutralize similar enemy ground defenses as Kosovo, found in Pakistan a decade later. The F-117 had been retired, the B-2 was ruled out for political concerns, and a new RPA was employed due to its capability to enable real time decision making from warfighters, particularly the Commander-in-Chief.

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[40] Aki Peritz and Eric Rosenbach. *Find, Fix, Finish: Inside the Counterterrorism Campaigns that Killed bin Laden and Devastated Al-Qaeda* (New York: Public Affairs, 2012) 214-218. Peter L. Bergen, *Manhunt: The Ten-Year Search for bin Laden From 9/11 to Abbottabad* (New York: Crown Publishers, 2012), 178-186.

[41] Bergen, *Man Hunt*, 178.

[42] Peritz and Rosenbach, *Find, Fix, Finish*, 216.

Conclusion

This chapter demonstrated that politics and capability influenced the rapid expansion of RPA in Afghanistan, while money was a less compelling factor. Despite some indications that key decision makers believed RPA were cheaper than manned aircraft early in the war, RPA did not initially increase primarily because of political aims and objectives focused on Iraq as well as noteworthy system limitations. Following a successful surge in Iraq, Afghanistan became a priority of decision makers. At that time, national leaders elected to employ a similar counterinsurgency strategy to that used in Iraq, which also included increasing RPA. Key leaders such as Secretary Gates had become RPA advocates because of their perceived ability to save soldiers' lives, in addition to their persistent ability to hunt potential suicide bombers, IEDs, and HVTs. The CIA also adapted its organizational structure and mission despite initial concerns, because of increasing capabilities and national support for missions into Pakistan. Even early skeptics such as CIA Director Michael Hayden acknowledged RPA capability to find, fix, and finish HVTs in Afghanistan and Pakistan appeared to be highly successful in eradicating al-Qaeda's leaders. The prospect of finding and killing Osama bin Laden and other terrorists on America's most wanted list probably served to increase decision makers' ultimate decision to expand RPA.

Chapter 5

Conclusions and Implications

The previous chapters examined how money, politics, and capability influenced America's decision to expand RPA in three conflicts—Kosovo, Iraq, and Afghanistan. Current policy and strategy indicate that RPA have become an important national resource that will probably be increasingly integrated and employed in future conflicts. Some decision makers such as Secretary Fanning continue to advocate acquiring more RPA, including existing systems such as the RQ-4 Global Hawk, while others such as General Gilmary Hostage, Commander of Air Combat Command, suggest the nation should pursue more capable and survivable RPA for potential conflicts in the Pacific. At the same time, SOCOM is pushing for more MQ-9 Reapers to enable its global special missions. Given current and expected future fiscal constraints levied on the DOD, each group is mindful of the price of RPA. The theory developed in Chapter 1 and tested in the case studies provides some utility for decision makers and strategists engaged in national debates about RPA.

To explain the rise of RPA, this paper relied on a combination of conceptual models. Expected-utility theory supported the first position that decision makers increased RPA because they believed the innovative systems would save the nation money. Prospect theory and domestic politics helped generate a second proposition that decision makers elected to expand its RPA inventory due to subjective, political motivations related to perceptions about risks, gains, losses, and the political efficacy of RPA. Finally, organizational theory supported a third proposition that national leaders increased RPA because of the capability they provided key domestic organizations. Ultimately, this thesis explained and evaluated the decision-making process surrounding three distinct conflicts not only for explanatory reasons, but also to make forecasts about RPA proliferation in the future.

The value of this thesis is that it provides decision makers and strategists engaged in debates about whether to invest in RPA with a clear understanding of when and why decisions were made in the past and will hopefully lead to better decisions in the future. The remainder of this chapter will review the core ideas and findings in the cases studied

and present a cross-case analysis to explain which of the propositions, or at the very least which combination of the propositions, best explains RPA proliferation.

Propositions & Case Studies Revisited

The Kosovo case study demonstrated that RPA and their operational expenses were dramatically cheaper than similarly manned systems and that decision makers considered the systems expendable means. Logically, lower cost platforms should have gained in popularity. The fact that national leaders selected expensive, manned platforms suggests that other factors were influencing the decision-making process. Civil and military leaders were willing to spend more money to field and accelerate system advancements in manned platforms for political and capability reasons that overshadowed RPA consideration.

From a political perspective, RPA were less appealing in Kosovo than manned alternatives. Manned weapon systems had demonstrated the ability to conduct conventional air strikes, suppress enemy air defenses, and even gather crucial intelligence, while bolstering American prestige by minimizing collateral damage through precision weapons. Decision makers probably viewed RPA as being a politically risky option. They also believed proven and new manned systems could help them win and that investing in and increasing the RPA inventory would not have provided more political leverage or more certainty with which to engage the enemy. Additionally, RPA would have done little to change public or military organizational opinions about the risk to pilots and aircraft after two were shot down. Most commanders observed that the shoot-downs were caused by a lack of manned aircraft dedicated to suppressing enemy air defenses, political restraints, and poor intelligence.

Kosovo demonstrated that RPA provided operational air commanders capabilities such as persistent ISR, but not the most important means required to coerce Milosevic, defeat his Serbian ground forces, or to stop genocide in the desired timeframe. RPA played a small support role in aiding the greater effort to find, fix, and finish a fleeting ground enemy in a highly publicized, political conflict touted as a coercive military operation reliant on airpower alone. Additionally, unlike Iraq and Afghanistan, decision makers knew where Milosevic and many of his leaders were throughout the conflict. Furthermore, due to the complexity of identifying friend from foe from the air, without

ground forces to make such distinctions, air commanders did not see a need for a persistent ISR RPA capability that was in many respects untested, unproven, and inadequate. In Kosovo, policy makers and commanders made a pragmatic and political decision not to field or expand evolving, largely experimental, RPA. Manned aircraft remained more desirable until the national security environment was altered by the 9/11 attacks on America, which significantly influenced the RPA decision-making process and future inventory growth.

The Iraq case study revealed that RPA and their operational expenses were often unknown or contested by key decision makers. Therefore, some national leaders still considered RPA expendable due to their low aircraft costs, but perhaps failed to reflect upon the total system and O&M costs. At the same time, decision makers may have focused on a number of new ways RPA appeared to be saving the nation money. RPA control stations served as dual-use simulators and added automatic takeoff and landing capabilities over the course of the war. Ultimately, the data on the financial costs of RPA versus other similar manned systems are still unsatisfying; the data do not provide conclusive evidence one way or the other. This thesis discovered that decision makers and their staffs should expect to be confounded with questionable or inconclusive monetary data because politics and capability appear to be greater motivators in the decision-making process. Cost calculations can be manipulated and therefore reflect a poor means of evaluating the value of a particular weapon system or capability.

Nevertheless, the common perception among national leaders was that RPA, equipped with a targeting pod, laser designator, and kinetic weapons could help save ground forces and precisely target al-Qaeda HVT at the same time. In this respect, the supported ground commanders and civilian leaders such as Secretary Gates appear to have influenced the expansion of RPA during the ground surge, compared to Kosovo, where some decision makers advocated employing more manned air assets. Unlike Kosovo, in which air commanders considered more RPA unnecessary to achieve political and operational objectives, ground commanders requested more ISR platforms throughout the Iraq conflict prompting civilian leaders such as Secretary Gates to direct the Air Force to send all available assets to CENTCOM, accelerating the expansion process. Also contrary to Kosovo where ground forces were ruled out and the Army had

virtually no voice on RPA fielding and application, in Iraq, Army commanders such as General Petraeus continuously argued that more ISR assets were necessary to achieve success. Ideas and initiatives from leaders such as Gates and Petraeus fueled civil and public opinions about the requirement of RPA in counterinsurgency operations. As the perceived expert, Petraeus' requests for RPA proved to be particularly influential with President Bush, Secretary Gates, and Congress. RPA provided some critical answers for decision makers charged with countering a threat that many leaders neither desired nor understood. Yet the nation collectively committed to a new strategy in Iraq because of the president's belief that victory could be achieved with new military leaders and operational methods in Iraq. Whether or not more RPA provided increased effectiveness or efficiency is debatable, but the precedent was set for similar conflicts in Afghanistan and Pakistan where persistent ISR would be increasingly valued by ground commanders at all levels of command.

In Afghanistan decision makers continued to debate the monetary costs of RPA. Nonetheless, they also elected to invest in the most expensive systems. Increasing costs due to network communication links required to fly RPA from the United States and related communication support personnel may have been a small price to pay for some decision makers, considering the larger context of the global war. However, the political reprioritization of threats in Afghanistan and Pakistan as the greatest threat to national security and subsequent decisions to surge troops in Afghanistan influenced RPA expansion, just as it had in Iraq. In addition, leaders such as Secretary Gates and General Petraeus continued their push for more ISR assets, while a new president increased the pursuit of al-Qaeda senior leaders in Pakistan, particularly bin Laden.

Thus, the political capital of RPA had increased dramatically since the days of Kosovo. Decision makers had become more risk acceptant with respect to RPA, which they believed could help mitigate public concerns about losing troops in battle that some were comparing to Vietnam. Ground forces continued to win political battles for increased resources, including RPA, leading to an increase in organic Army assets deployed and used only when in theater.

In Afghanistan and Pakistan RPA provided decision makers with a more politically palatable option than manned assets combined with proven and decisive

capabilities to defeat HVTs. RPA capability, both direct and indirect, improved throughout the conflict and played an increasing role in Afghanistan and Pakistan as a result. The find and fix capabilities of RPA appear to have been crucial in the Abbottabad raid in Pakistan where Special Operations Forces were able to kill bin Laden. The combination of ground forces, manned aircraft, and RPA platforms were integrated successfully to achieve combat and political objectives at the same time.

Merging the Case Studies

Examining the case studies collectively reveals a number of significant ideas about RPA decision making, the decision maker's involved, and organizational values. First, money appears to be a motivator in RPA expansion, but not the most important motivation in any of the cases studied. After, the conflicts were initiated, decision makers at all levels of the government elected to increase war funding as well as RPA financial support. In this respect, readers of this paper should be cognizant that while money remains a rational and important consideration to decision makers, the nation's leaders and defense organizations were consistently more influenced by capable and politically expedient weapons.

Future research would benefit greatly from new ways to communicate the risk of expanding RPA inventories using data focused more on the long-term impacts on combat capability for the nation and its defense organizations. The impact to the USAF will naturally differ compared to SOF or CIA, based on different overall expectations and missions. In this respect, a metric that shows low-versus-high-intensity conflict weapon-system capability strengths and weaknesses or vulnerabilities, in addition to whether or not RPA could be employed or advanced to meet combat objectives would be of value to decision makers based on the lessons of this study. Additionally, it may be beneficial to inform decision makers of the potential political risks of not increasing RPA in future conflicts with similar situational factors as Iraq and Afghanistan, which have set a precedent to increase RPA over manned assets to mitigate some political concerns such as saving lives and hunting HVTs across sovereign borders.

The political factors that consistently motivated decision makers throughout the conflicts were both objective and subjective. Saving lives emerged as a major rationale for RPA expansion in Iraq and Afghanistan, while it played virtually no role in Kosovo

where only two pilots were shot down and quickly rescued. The nation perceived that losing pilots was not a major problem or even a political liability in Kosovo. In Iraq and Afghanistan, ground forces were introduced and the political calculus changed dramatically when troops were exposed to danger. Two different administrations and multiple senior leaders wrestled with the amount of troops required in Iraq, and then again in Afghanistan. Contrary to public opinion, leaders elected to increase RPA assets commensurate with increases in troop levels to manage the political losses that would occur without expansion. If large numbers of troops were not employed in the conflicts, as was the case in Kosovo and early in Afghanistan, RPA expansion probably would not have been as dramatic.

Factors that will continue to fuel debates in the future center on concepts such as the political values, risks, and gains associated with weapon systems that demonstrate more or less political efficacy. In Iraq and Afghanistan ground commanders and other civilian leaders perceived that RPA helped mitigate risks and save a significant number of soldiers lives, versus Kosovo where even Air Force leaders believed pilots were never really at risk. In the future, decision makers will probably be motivated by the political costs to rapidly field new weapon systems like RPA that are viewed as essential to protect the most vulnerable military forces, while providing increased political options. Identifying leader's perceptions about the degree to which American lives are at greater risk, as well as their perceptions about the ability of RPA to help save or mitigate losses of military forces, will provide important insights about the proliferation of RPA in future conflicts. Civil and military leaders will continue to wrestle with the political implications of increasing weapon systems like RPA in future conflicts; increasing the number of fielded RPA may help with public perceptions about questionable wars by removing Americans from the battlespace, but it may not result in more effective or efficient capability or operations.

The three cases revealed that decision makers and organizations pursued RPA for more than political reasons. The decision to expand RPA was also influenced by organizational perspectives related to system capabilities. The Army believed any and all ISR assets were critical to their mission, while the Air Force argued that RPA were primarily a strategic weapon and more realistically a niche enabler of their larger mission.

The CIA's use of RPA appears to bolster the Air Force's strategic argument because their missions were conducted for and approved by the NSC. It cannot be denied that the Army won the battle over executive authority and that fielding more RPA capability was considered important to the highest levels of the government regardless of the mission being performed. Again, the focus of decision makers and readers of this paper should be to balance political pursuits with capability that can enable short-term and long-term objectives. In this respect, decision makers' rapid development and fielding of the RQ-170 is an example of an RPA that should have both political and combat utility in multiple scenarios in the future. However, decision makers may have to decide in the future just as they did with the B-2 and other strategic assets if wars past, if the RQ-170 should be used to support ground forces or if other alternatives are sufficient. As organizations change so will there requests, desires, and demands for various types of RPA. This study suggests that the predominant force or supported force in a particular conflict will accelerate, inhibited, or prevent the rise of RPA capabilities in the future.

Based on capability alone, RPA appear to be a versatile and flexible weapon system that some special organizations such as the CIA and SOF will probably continue to pursue and support. However, a number of capability shortcomings still exist that will naturally turn conventional organizations such as the Air Force away from RPA used in recent wars. Organizations like Air Combat Command expected to conduct high-intensity, large-scale wars against peer-to-peer competitors such as China will probably continue to pursue conventional weapon systems that will given them the best opportunity to defeat exceptionally capable threats. Persistent and more survivable RPA such as the RQ-170 combined with potential long-range strike capable RPA, must be proactively developed, fielded, and integrated into the Air Force's arsenal. RPA may have challenged some decision makers' and organizations' way of thinking in the past, but today nations and organizations that fail to develop and field more capable RPA are likely to sacrifice more blood and treasure in future wars. General Hostage was correct—more capable RPA are required in a Pacific scenario. However, there are advancements that can be made to Predator and Reaper that make them more relevant in such conflicts, just as manned aircraft were adapted to fight and defeat insurgents in Iraq and Afghanistan.

Final Thoughts

Explanations for the rapid development, fielding, and expansion of RPA during the wars in Iraq and Afghanistan continue to be debated despite the apparent combat success and political utility of RPA in warfare. The opening epigraphs of this paper indicate that leaders have different perspectives about how many and what types of RPA will be utilized in future conflicts. Most decision makers and organizations agree that RPA are here to stay and must be advanced and integrated wisely in warfare. However, for some leaders and organizations it is hard to imagine a scenario in which the nation would require more RPA, especially older systems perceived as extremely vulnerable in non-permissive environments. Whether old or new, RPA proliferation depends largely upon the conditions and conflicts of the future, as well as the people and organizations involved in the decision-making process. History and theory suggest that hunting America's most wanted while saving money, lives, and face may lead to a rise of RPA in future conflicts.

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